



STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

# **Rhode Island Renewable Energy Standard**

## **Annual RES Compliance Report for Compliance Year 2017**

**May 2019**

**Rhode Island Public Utilities Commission**

89 Jefferson Boulevard

Warwick, Rhode Island 02888

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# Rhode Island Renewable Energy Standard

## Annual Compliance Report for Compliance Year 2017

### Executive Summary

#### **Introduction**

Compliance Year 2017, from January 1, 2017 through December 31, 2017, was the eleventh Compliance Year of the Rhode Island Renewable Energy Standard (RES).<sup>E1</sup> Under R.I. Gen. Laws § 39-26-6, the Rhode Island Public Utilities Commission (PUC) is charged with implementing the RES and ensuring compliance by Obligated Entities.<sup>E2</sup> In 2017, each Obligated Entity was required to obtain at least 11.5% of electrical energy (including line losses) sold to Rhode Island end-use customers from Eligible Renewable Energy Resources, with no less than 9.5% of that obligation sourced from New Renewable Energy Resources.

This eleventh Annual RES Compliance Report (Report) is intended to satisfy the requirement in R.I. Gen. Laws § 39-26-6(f) to report “the status of the implementation of the renewable energy standards in Rhode Island and other states.” The legislation specifically requests a summary of the role of renewable energy certificates (RECs) and alternative compliance payments (ACPs) in meeting the RES obligation, as well as the amount of rate increases authorized to recover costs arising from implementation of the RES. This Report includes information about continuing and developing issues regarding the administration of the RES.

#### **2017 RES Obligation and Compliance**

The State’s 2017 RES-obligated retail sales totaled 7,741,798 megawatt-hours (MWh) of electrical energy, which was served by thirty Obligated

Entities <sup>E3</sup> including the Narragansett Electric Company. As shown in Table E.1 below, the total minimum obligation to be satisfied by New Renewable Energy Resources was 735,485 MWh (9.5% of each Obligated Entity’s retail sales).<sup>E4</sup> The obligation to be satisfied by either Existing or New Renewable Energy Resources was 154,850 MWh (2.0% of each Obligated Entity’s retail sales). Almost all (99.8%) of the combined New and Existing resource obligation was met through retirement of Rhode Island-eligible NEPOOL GIS Certificates, also referred to more generally as Renewable Energy Certificates or RECs.<sup>E5</sup>

The total number of New RECs procured by Obligated Entities in Compliance Year 2017 was 806,292, which includes 58,796 RECs banked from Compliance Years 2015 and 2016. This is a 9.6% surplus of New RECs across all Obligated Entities, up significantly from the 7.4% and 8.9% surpluses in Compliance Years 2015 and 2016, respectively. With this surplus in Compliance Year 2017, twenty-four Obligated Entities combined to bank 67,106 RECs for use in Compliance Years 2018 or 2019. This total does not include 3,338 RECs that were above individual Obligated Entities’ banking cap. This surplus reflects a sustained increase in regional renewable energy supply through the construction of additional capacity, the retrofitting of existing resources throughout the NEPOOL region, and a significant increase in the quantity of RES-

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<sup>E1</sup> Renewable Energy Certificates (RECs) are generated during a Compliance Year in real time, but trading runs from July through June. Thus, trading and compliance for Compliance Year 2017 runs from July 2017 through June 2017.

<sup>E2</sup> Per R.I. Gen. Laws § 39-26-2, Obligated Entities, including but not limited to non-regulated power producers and electric utility distribution companies, sell electrical energy to end-use customers in Rhode Island. The Block Island Power Company and the Pascoag Utility District are specifically exempt from the RES.

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<sup>E3</sup> An individual Obligated Entity’s load obligation is rounded to the nearest whole megawatt-hour (MWh).

<sup>E4</sup> An individual Obligated Entity’s New and Existing obligation is rounded up to the nearest whole MWh.

<sup>E5</sup> NEPOOL GIS refers to the New England Power Pool Generation Information System, which as explained on its website, “issues and tracks certificates for each MWh of generation produced in the ISO New England control area, including imports from adjacent control areas, and all load served.” The terms “GIS Certificate” and “Renewable Energy Certificate,” or “REC,” are often used interchangeably in the marketplace. REC is a more general term, while it is the settlement of GIS Certificates that substantiates RES compliance.

**Table E.1: Composition of 2017 RES Compliance**

	New RES Obligation	Existing RES Obligation
2017 Minimum Obligations (MWh) <sup>a</sup>	735,485 MWh	154,850 MWh
GIS Certificates Retired for 2017 RI RES Compliance (MWh, %)	735,485 MWh, (100%) <sup>b</sup>	153,354 MWh, (99.03%)
RI RES Compliance by Alternative Compliance Payments (MWh, \$)	0 MWh, \$0	1,496 MWh, \$101,294
Banked for Future Compliance	67,106 Certificates	Not Applicable
Over-compliance / RECs Not Banked	3,338 <sup>c</sup>	15,576 Certificates
Outstanding REC / ACP obligation	0	0
<sup>a</sup> See note E3. <sup>b</sup> This value includes the application of 58,796 RECs banked from Compliance Years 2015 and 2016 plus the application of RECs minted and retired in Compliance Year 2017. <sup>c</sup> Banking is capped at an individual Obligated Entities' Compliance Year obligation for New RECs.		

eligible imports during this period.

Nearly 100% of the State's 2017 Existing RES obligation was met through retiring RECs. Cumulatively, Obligated Entities combined to procure a net excess of 4,365 RECs above the 2017 Existing REC requirement. Banking of Existing RECs is not allowed under Rhode Island's Renewable Energy Standard.

Taken as a whole, there was a New and Existing REC surplus among Obligated Entities. Taken individually, only one Obligated Entity chose to comply, partially, by making ACPs totaling \$101,294 in lieu of retiring 1,496 New or Existing RECs.<sup>E7</sup> This continues a recent trend of relatively low total ACP costs paid by Obligated Entities.

Together, the increased reliance on RECs, decreased reliance on ACPs, and increase in banking of RECs is evidence that the 2017 supply of Rhode Island-eligible New RECs eligible to be used for compliance with the RES was less constrained than in previous compliance years.

### 2017 RES Resources

Most of the New RECs settled in 2017 were generated at wind-powered facilities (33.5%), and landfill gas facilities (33.5%), followed by biomass (21.4%), solar photovoltaic (7.3%), hydroelectric (3.9%), and gas (0.5%) facilities.<sup>E8</sup> This represents a continued

<sup>E7</sup> In Compliance Year 2017, Alternative Compliance Payments (ACPs) in lieu of both New and Existing RECs were valued at \$67.71 per MWh.

<sup>E8</sup> Not all the RECs purchased, minted, and settled in Compliance Year 2017 were used to meet Compliance Year

notable increase in reliance on wind and a sustained reliance on landfill gas (Figure E.1). There was also a moderate but steady increase in reliance on solar photovoltaic resources. In terms of location, most of the New RECs settled in 2017 were sourced from Rhode Island, up significantly compared to 2016 in terms of both the total RECs (Figure E.2) from Rhode Island and in terms of the share of RECs sourced from Rhode Island. The remaining RECs came from Maine (23.2%), New Hampshire (9.4%), New York imports (8.7%), Massachusetts (3.7%), and Vermont (2.8%).

Unlike previous years during which all the Existing RECs were generated at hydroelectric facilities, some Existing RECs were sourced from biomass facilities. This year, Existing RECs were sourced from Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.<sup>E9</sup> Finally, sixty-six projects were approved as Renewable Energy Resources by the PUC since last year's Report. The current total is 321 resources approved or conditionally approved as New, Existing, or partial New and partial Existing.<sup>E10</sup>

2018 obligations. Some RECs were banked for use in Compliance Years 2018 and 2019. Also, this summary excludes voluntary REC purchases above the RES. Voluntary clean energy programs are summarized in Appendix 4 of this Report.

<sup>E9</sup> Additional information on the composition of 2017 RES compliance by fuel type and geographic location is provided in Section III of this Report.

<sup>E10</sup> A monthly status report on RES approvals and applications can be accessed here: <http://www.ripuc.org/utilityinfo/res.html>.

Figure E.1: Historical New RECs by Fuel Source

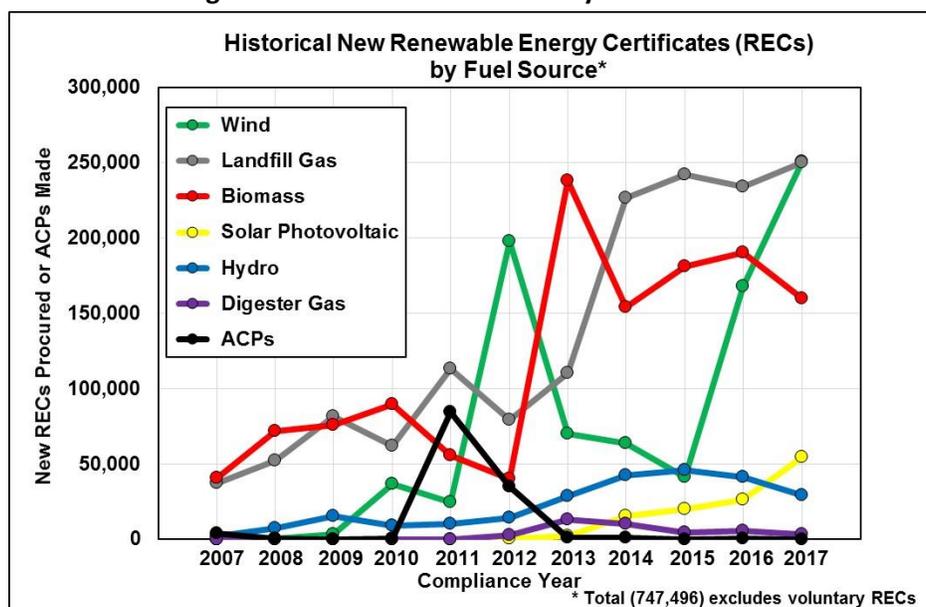
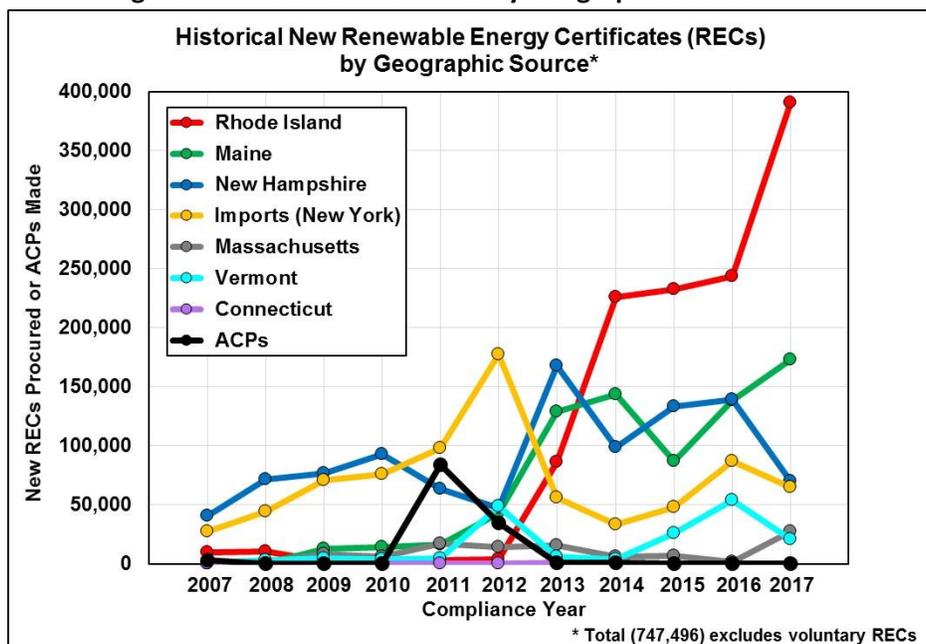


Figure E.2: Historical New RECs by Geographic Source



### 2017 Customer Charges

The Narragansett Electric Company d/b/a National Grid (National Grid) is the only Obligated Entity for which the PUC collects data on the charges to ratepayers for complying with the RES.<sup>E11</sup> Early in a calendar year, National Grid proposes a RES charge designed to collect the costs of compliance during the upcoming compliance year, outstanding costs for the

remainder of the current compliance year, and to true up any outstanding cumulative under- or over-collection made during previous compliance years.<sup>E12</sup>

<sup>E11</sup> The complete history of RES charges to National Grid's Standard Offer Service customers is provided below in Section V, Table 4.

<sup>E12</sup> National Grid typically files for a rate change to the Renewable Energy Charge in late winter for effect on April 1<sup>st</sup>. Therefore, the timing of changes in the RES charge occurs three months into the Compliance Year, and three months before the REC trading year turns over. For the 2017 example, see:

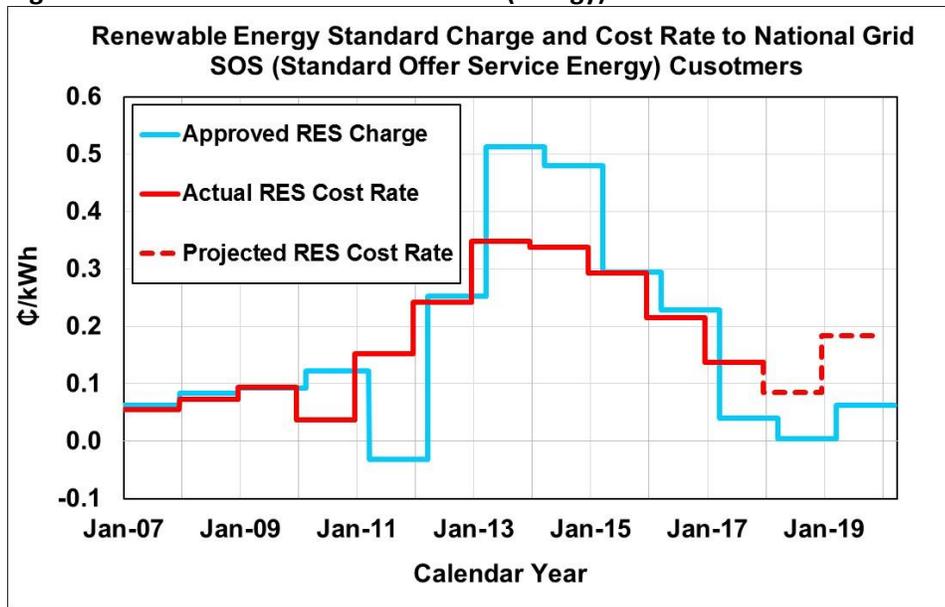
[http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

**Table E.2: Estimated Rate Impact for RES Compliance to National Grid SOS (Energy) Customers**

Effective Date	Projected REC Procurement Cost (per kWh) <sup>a</sup>	Adder for previous and current costs (per kWh)	Authorized RES Charge (per kWh)	Monthly & Annual Charge to 500-kWh Ratepayer
April 2019 – Report Date	\$0.00183	(\$0.00120)	\$0.00063	\$0.32   \$3.78
April 2018 – March 2019	\$0.00190	(\$0.00186)	\$0.00004	\$0.02   \$0.24
April 2017 – March 2018	\$0.00264	(\$0.00224)	\$0.00040	\$0.20   \$2.40
April 2016 – March 2017	\$0.00405	(\$0.00117)	\$0.00288	\$1.44   \$17.28
April 2015 – March 2016	\$0.00366	(\$0.00072)	\$0.00294	\$1.47   \$17.64
April 2014 – March 2015	\$0.00430	\$0.00050	\$0.00480	\$2.40   \$28.80

<sup>a</sup> The projected REC procurement cost is for current year costs. The projected compliance rate for Compliance Year 2017 was \$0.00264 per kWh and was collected from April 2017 through March 2018.

**Figure E.3: RES Charges and Cost Rate to National Grid SOS (Energy) Customers**



The charge of \$0.00040 per kilowatt-hour (kWh), effective April 1, 2017 through March 31, 2018, comprises a \$0.00264 per kWh factor for projected costs for Compliance Year 2017 and a negative \$0.00224 per kWh reconciliation factor for a cumulative over-collection of costs for previous Compliance Years, including costs for Compliance Year 2016 (see the yellow row in Table E.2; Figure E.3). This charge represents an approximately 86% decrease relative to the previous RES charge authorized in 2016.

While this Report focuses on Compliance Year 2017, it should be noted that in April 2018, the RES charge was reduced again to \$0.00004 per kWh. The

decrease reflects a large over-collection factor and a falling cost projected for New REC compliance in 2018.<sup>E13</sup> In March 2019, the PUC approved National Grid’s proposal to increase the RES charge again, for effect on April 1, 2019, to \$0.00063 per kWh. The increase is caused by a decrease in the magnitude of the overcollection factor.<sup>E14</sup>

<sup>E13</sup> National Grid 2018 Renewable Energy Standard Charge and Reconciliation, Attachment 1, [http://www.ripuc.org/eventsactions/docket/4692-NGGrid-RESReconciliation2018\\_2-27-18.pdf](http://www.ripuc.org/eventsactions/docket/4692-NGGrid-RESReconciliation2018_2-27-18.pdf).

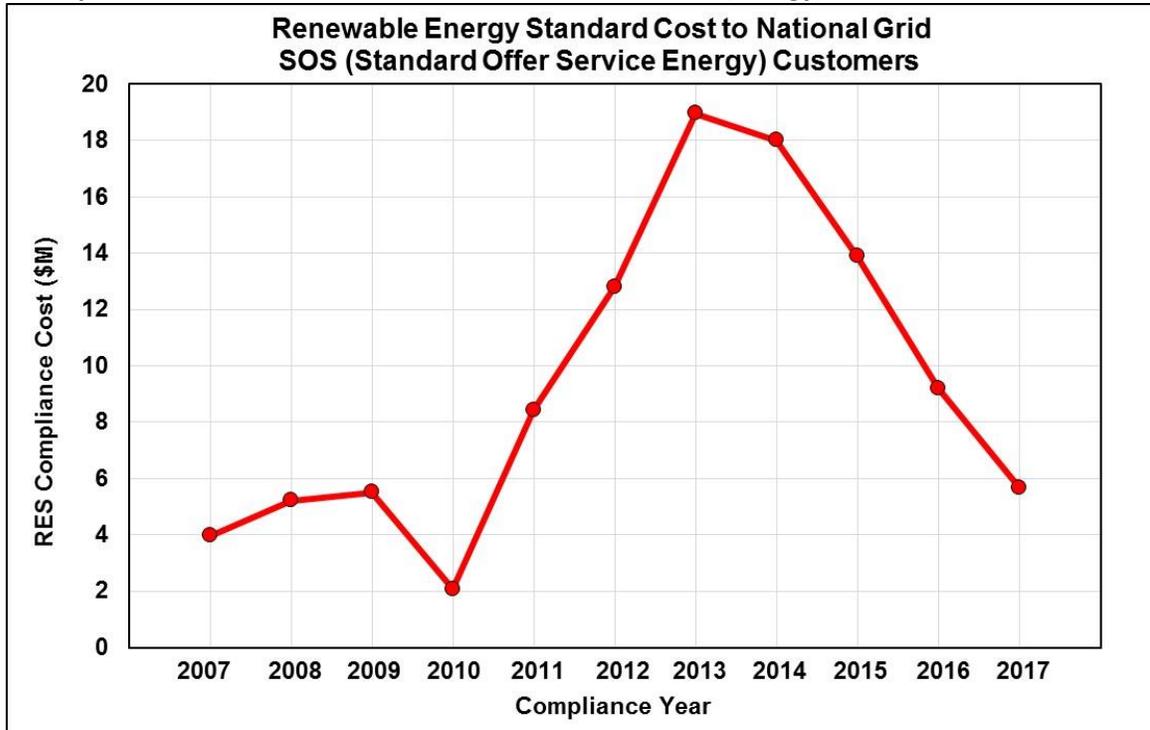
<sup>E14</sup> National Grid 2019 Renewable Energy Standard Charge and Reconciliation, Attachment 1, [http://www.ripuc.org/eventsactions/docket/4809-NGGrid-RES Reconciliation \(PUC 2-27-19\).pdf](http://www.ripuc.org/eventsactions/docket/4809-NGGrid-RES Reconciliation (PUC 2-27-19).pdf)

**Table E.3: Summary of National Grid's RES Compliance Costs<sup>a</sup>**

Compliance Year	Total RES Costs (Millions)	New REC Costs (Millions)	Existing REC Costs (Millions)	ACP Costs (Millions)	Obligated Load (MWh)
2017	\$5.65	\$5.53	\$0.12	\$0	4,097,802
2016	\$9.20	\$9.10	\$0.10	\$0	4,282,268
2015	\$13.88	\$13.80	\$0.08	\$0	4,773,192
2014	\$18.00	\$17.93	\$0.07	\$0	5,317,349
2013	\$18.96	\$18.90	\$0.06	\$0	5,541,409

<sup>a</sup> See note E16.

**Figure E.4: Compliance Costs to National Grid Standard Offer Service (Energy) Customers**



**2017 Compliance Costs**

National Grid is also the only Obligated Entity for which the PUC collects cost-of-compliance data.<sup>E15</sup> To meet its 2017 New and Existing RES obligations, National Grid incurred \$5.65 million in compliance costs (Table E.3; Figure E.4).<sup>E16</sup> This is a decrease of approximately 38.6% from the cost incurred to comply with 2016 RES targets. Approximately \$5.49

million was charged to Standard Offer Service energy supply customers for purchases of RECs generated by projects in National Grid’s Long-term Contracting and Renewable Energy Growth programs in 2017,<sup>E17</sup> although some of those RECs were banked for use in Compliance Years 2018 and 2019.

The current cost rate of the RES obligation to National Grid’s Standard Offer Service energy supply customers (Total RES Costs divided by Obligated Load) was approximately \$0.00138 per kWh in Compliance Year 2017. This continues a steady decrease that began in Compliance Year 2014 (Figure E.3). Information filed by National Grid with the PUC

<sup>E15</sup> The complete history of RES cost to National Grid’s Standard Offer Service customers is provided below in Section V, Table 5.

<sup>E16</sup> The \$9.2 million sum of New REC and Existing REC costs are based on communications with National Grid and may include the costs of RECs purchased and banked in previous Compliance Years that were used for Compliance Year 2016, among other minor factors.

<sup>E17</sup> R.I. Gen. Laws § 39-26.1, § 39-26.2, and § 39-26.6.

indicates compliance costs will again decrease for Compliance Year 2018.

The decrease in compliance cost to National Grid likely reflects an increasing supply in Rhode Island-eligible New RECs relative to demand for these RECs. This reasoning is supported by a reported surplus in New RECs retired by Obligated Entities and a low reliance on ACPs in Compliance Year 2017.

It must be noted that this data only represents expenses incurred by Standard Offer Service customers of National Grid, accounting for approximately 53% of all retail energy served statewide in 2017. The remaining 47% of statewide electric load is serviced by competitive energy suppliers for whom the PUC does not have access to compliance cost data. A REC surplus would potentially lower compliance costs to other Obligated Entities. It should also be noted that National Grid passes unpredicted savings and expenses resulting from changes in the REC market onto Standard Offer Service customers and distribution customers. Other Obligated Entities (non-regulated competitive energy suppliers) may pass some of the REC market risk to their company's profits and losses rather than pass it onto their customers dollar-for-dollar. Finally, in addition to the costs enumerated above, the Commission incurred at least \$130,000 in expenses related solely to the administration of the RES for Compliance Year 2017.

### **2017 Conclusions**

This analysis concludes that the Rhode Island RES continues to operate successfully. Similarly, in December 2018 the PUC conducted a statutory review of the adequacy of resources available to meet the incremental increase in the RES in Compliance Year 2020, found the supply was adequate, and maintained the scheduled increase in the RES.<sup>E18</sup>

The cost of the RES has certainly decreased for National Grid Standard Offer Service customers and may have decreased for customers of competitive energy suppliers. There is some evidence that compliance costs will not increase and will potentially

decrease in the short term due to a surplus of New RECs eligible to meet Rhode Island's RES, but regional demand for renewable energy could counter this potential.

The number of Rhode Island-eligible generating units continues to grow, including facilities located within the State, as does the number of new renewable energy projects throughout the region and adjacent control areas. The PUC remains optimistic that the supply of Rhode Island-eligible New RECs will continue to grow, and that Obligated Entities will be able to source RECs in a balanced marketplace over the next few years, with sustained and minor reliance on ACPs. Economic conditions, various permitting and interconnection issues, uncertainty over the long-term availability of federal incentives, availability of long-term contracting for renewable projects, and other factors that impact investment decisions, however, all have the potential to delay or decrease the number of resources that enter the marketplace. As a result, it is difficult to predict in which years supply will balance with demand and in which years a gap between the two will exist.

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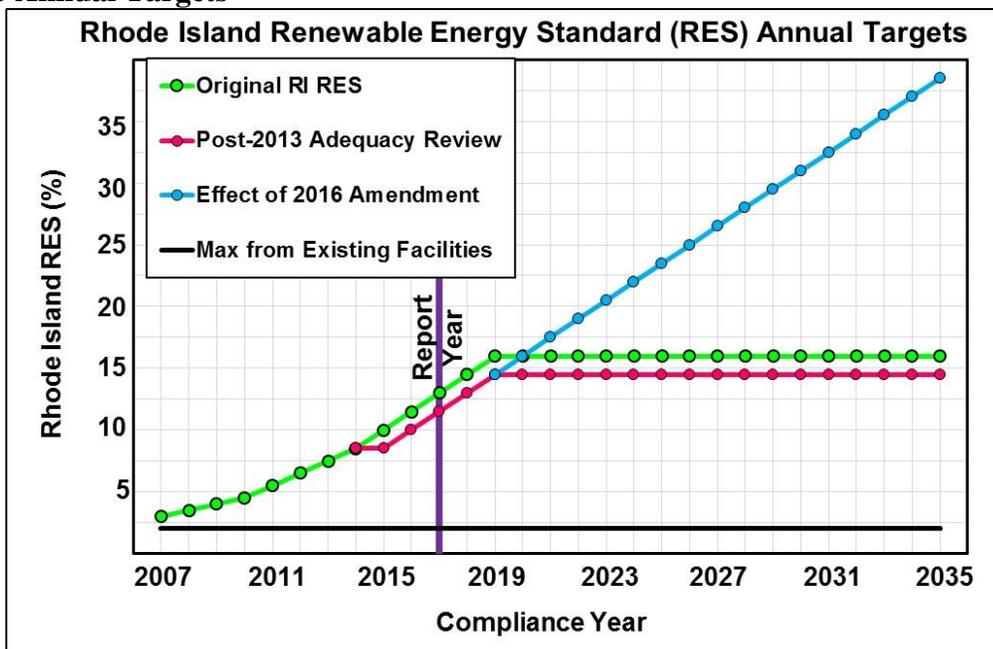
<sup>E18</sup> For additional information, refer to materials filed in Commission Docket No. 4903 at: [http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381\(1-4-19\).pdf](http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381(1-4-19).pdf)

# I. Introduction to the Renewable Energy Standard

The Rhode Island Renewable Energy Standard (RES) was enacted in 2004 via R.I. Gen. Laws §§ 39-26-1 to 10 and requires the State’s retail electricity providers (referred to as Obligated Entities), excluding Pascoag Utility District and Block Island Power Company, to supply a defined proportion of their annual retail electricity sales from Eligible Renewable Energy Resources. The Rhode Island Public Utilities Commission (PUC) is the state agency that regulates and administers the RES. The PUC is required to report annually on the RES, as is provided in this document.

Legislative and regulatory actions have altered the annual RES requirement since its original passage in 2004 (Figure 1). The original RES target was 16.0% renewable energy by 2019, remaining in effect thereafter, unless and until the PUC determined that the standard was no longer necessary.<sup>1</sup> Subsequently, in 2013, the PUC conducted a statutory review of the adequacy of renewable energy supplies and, because of that investigation, ordered a delay in the 1.5% increase in Compliance Year 2015. This decision resulted in a revised final target of 14.5% renewable energy in 2019.<sup>2</sup> In 2016, the RES statute was amended to require annual increases of 1.5%, to continue from 2020 through 2035, resulting in a final target of 38.5% renewable energy.<sup>3</sup> Per the RES statute, the PUC conducted an adequacy review beginning in December of 2018. In that review the PUC found that there is likely to be adequate renewable energy supply to meet the RES increase in Compliance Year 2020 and maintained the scheduled RES increase.<sup>4</sup>

**Figure 1. RES Annual Targets**



<sup>1</sup> P.L. 2016, ch. 144, § 1 and P.L. 2016, ch. 155, § 1 deleted R.I. Gen. Laws § 39-26-4(a)(5), which previously provided: “In 2020 and each year thereafter, the minimum renewable energy standard established in 2019 shall be maintained unless the commission shall determine that such maintenance is no longer necessary for either amortization of investments in new renewable energy resources or for maintaining targets and objectives for renewable energy.” For P.L. 2016, ch. 155, § 1, see <http://webserver.rilin.state.ri.us/PublicLaws/law16/law16155.htm>.

<sup>2</sup> This review was mandated by R.I. Gen. Laws § 39-26-6(d). This section of the law was amended by P.L. 2016, ch. 144, § 1 and P.L. 2016, ch. 155, § 1. See also note 1.

<sup>3</sup> R.I. Gen. Laws §§ 39-26-1 to 10, as amended, do not explicitly maintain an RES proportion in 2036 and thereafter.

<sup>4</sup> For additional information, refer to materials filed in Commission Docket No. 4903 at: [http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381%20\(1-4-19\).pdf](http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381%20(1-4-19).pdf)

Compliance Year 2017 was the eleventh compliance year for Rhode Island's RES.<sup>5</sup> The RES required all Obligated Entities to obtain at least 11.5% of electricity sold in 2017 to Rhode Island end-use customers (inclusive of certain losses) from Eligible Renewable Energy Resources. No more than 2.0% could be from Existing Renewable Energy Resources and a minimum of 9.5% must have been obtained from New Renewable Energy Resources (Table A5 in Appendix 5).

Additional design elements of the RES were developed through a stakeholder process and adopted via the Rules and Regulations Governing the Implementation of a Renewable Energy Standard, which first became effective on December 7, 2005. Revised RES Regulations became effective on July 25, 2007. The RES Regulations require, among other provisions, that all Obligated Entities submit annual compliance filings to the PUC. This Report is based on an aggregated summary of these compliance filings and is intended to satisfy the reporting requirements related to the enabling legislation at §39-26-6(f), which directs the PUC to report annually to the Governor, the Speaker of the House, and the President of the Senate "the status of the implementation of the renewable energy standards in Rhode Island and other states." The annual Reports must also include "the level of use of renewable energy certificates by eligible renewable energy resources and the portion of renewable energy standards met through alternative compliance payment."

The RES statute defines Eligible New and Existing Renewable Energy Resources at §39-26-5. All Renewable Energy Resources must be certified by the PUC (and the certification maintained) to participate in the RES program. An up-to-date status of all approved and pending eligibility applications can be found on the PUC website at [www.ripuc.org/utilityinfo/res.html](http://www.ripuc.org/utilityinfo/res.html).

All Renewable Energy Resources must also establish and maintain an account with the New England Power Pool Generation Information System (NEPOOL GIS). NEPOOL GIS maintains a record of each generator's monthly production as well as the generator's descriptive characteristics, such as generator location, fuel type, and actual emissions. One GIS Certificate is created for each megawatt-hour (MWh) of electrical energy production generated within, or imported into, the ISO New England (ISO-NE) control area, which includes Rhode Island. A single GIS Certificate for one MWh of eligible renewable energy generation is also commonly known as a Renewable Energy Certificate (REC).<sup>6</sup> The GIS Certificate is the currency used to demonstrate compliance with the RES, as well as mandatory renewable energy requirements in other states, and voluntary renewable energy transactions throughout the ISO-NE control area. Through the use of GIS Certificates, which are created and transferred exclusively within the NEPOOL GIS, and the annual submission of RES Reports, the PUC ensures that a GIS Certificate used for RES compliance has not also been used to satisfy another obligation in Rhode Island or any other jurisdiction. In this way, the PUC guards against any "double counting" of RECs.

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<sup>5</sup> January 1, 2017 through December 31, 2017.

<sup>6</sup> As explained on its website, NEPOOL GIS "issues and tracks certificates for each megawatt-hour (MWh) of generation produced in the ISO New England control area, including imports from adjacent control areas, and all load served." The terms "GIS Certificate" and "Renewable Energy Certificate," or "REC," are often used interchangeably in the marketplace. While REC is the more general term used to denote a generator's descriptive characteristics (i.e. fuel type, vintage and geographic location), it is the settlement of GIS Certificates within the Obligated Entity's NEPOOL GIS account that substantiates RES compliance.

## II. Compliance Year 2017: Obligation and Sources of Compliance

Rhode Island’s actual 2017 RES-obligated retail sales totaled 7,741,800 MWh of electrical energy. As a result, the aggregate minimum New RES obligation (9.5%) was 735,485 MWh, while the aggregate New or Existing RES obligation (2.0%) was 154,850 MWh.<sup>7</sup> Obligated Entities were required to meet the RES either through the purchase and retirement of NEPOOL GIS RECs<sup>8</sup> or through the provision of Alternative Compliance Credits, obtained by making Alternative Compliance Payments (ACPs) to the Rhode Island Commerce Corporation. The Rhode Island Commerce Corporation sets these funds aside in the Renewable Energy Development Fund, established under R.I. Gen. Laws § 39-26-7, to support investments in renewable energy. In 2017, the ACP rate was \$67.71 per MWh of obligation.<sup>9</sup> The rate is the same for both New and Existing RES obligations. Additional information regarding ACP rates is found in Appendix 1.

**Table 1: Obligated Entities Submitting 2017 RES Compliance Filings to the PUC**

<b>Distribution Utilities</b>	
The Narragansett Electric Company d/b/a National Grid	
<b>Competitive Retail Providers (Non-regulated power producers)</b>	
Agera Energy, LLC	ENGIE Resources, LLC
Ambit Northeast, LLC	ENGI Retail, LLC d/b/a Think Energy
Archer Energy, LLC	First Point Power (BP Energy Company)
Calpine Energy Solutions, LLC	Liberty Power Holdings, LLC
Champion Energy Services, LLC	Mint Energy, LLC
Clearview Electric, Inc. (BP Energy Company)	Moore Energy, LLC
Consolidated Edison Solutions, Inc.	NextEra Energy Services Rhode Island, LLC
Constellation Energy Services, Inc. (Exelon Generation Solutions)	North American Power and Gas, LLC
Constellation New Energy, Inc.	Public Power, LLC
Devonshire Energy, LLC	South Jersey Energy Company
Direct Energy Business, LLC and Energy America, LLC	Town Square Energy, LLC
Direct Energy Business Marketing	TransCanada Power Marketing, Ltd.
Direct Energy Services	Viridian Energy, LLC
Discount Power, Inc. (BP Energy Company)	XOOM Energy Rhode Island, LLC
EDF Energy Services	

In total, thirty entities were obligated to submit RES Compliance Filings to the PUC, including National Grid and twenty-nine competitive retail energy providers, as shown in Table 1. Appendix 2 lists all entities from which Compliance Filings were received and provides a detailed summary of RES compliance for National Grid along with a more limited summary for competitive retail energy providers.

Twenty-nine of these entities met their entire RES obligation by retiring RECs. One competitive energy supplier met a portion of its 2017 RES obligation by making ACPs to the Rhode Island Commerce

<sup>7</sup> Note that the total New and Existing RES obligations are slightly higher than 9.5% and 2.0% of total obligated retail sales due to rounding protocols for individual Obligated Entities.

<sup>8</sup> RECs are issued about seven months after they are generated. Thus, January 2017 RECs are issued June 15, 2017. Because of this lag, trading for 2017-vintage RECs and the costs incurred by Obligated Entities for Compliance Year 2017 continued through June 15, 2018.

<sup>9</sup> See <http://www.ripuc.org/utilityinfo/RES-ACPRate.pdf>.

Corporation. Twenty Obligated Entities utilized some of their Banked Compliance to meet their 2017 obligation. Twenty-four Obligated Entities banked RECs minted in 2017 for use in 2018 or 2019. The number of Obligated Entities choosing to bank RECs continues to climb from eighteen in 2015 and twenty-two in 2016. A breakdown of compliance by the numbers is presented in Table 2.

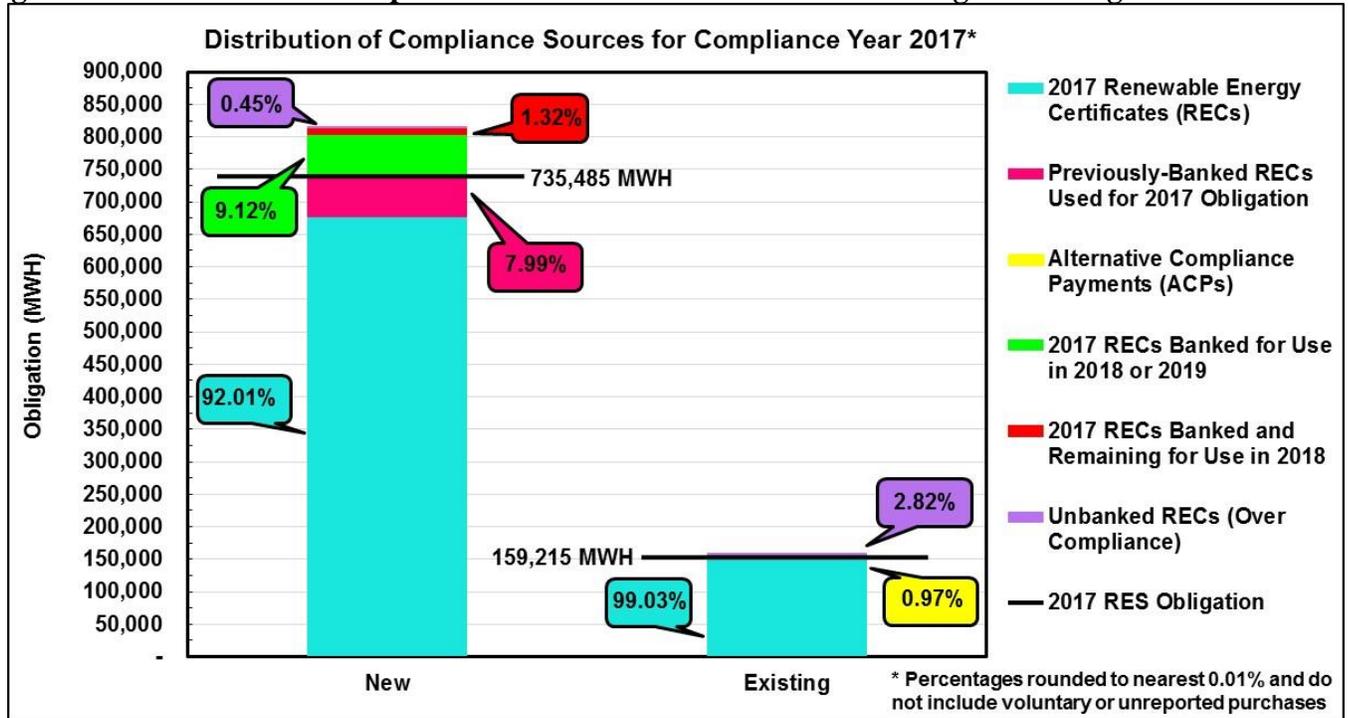
**Table 2: Summary of 2017 RES Compliance**

<b>Results for Compliance Year 2017</b>		<b>(MWh) <sup>a</sup></b>
<b>A</b>	<b>2017 RES Obligated Retail Sales</b>	7,741,798
A.1	National Grid	4,097,802
A.2	Competitive Suppliers (29 total)	3,643,996
<b>New RES Obligations and New Renewable Energy Certificates</b>		
<b>B</b>	<b>Total 2017 New RECs Settled in Rhode Island <sup>b</sup></b>	<b>806,292</b>
B.1	2017 New RECs Purchased	747,496
B.2	Banked 2015 and 2016 New RECs Applied	58,796
<b>C</b>	<b>New RES Obligations (9.5% of “A”)</b>	<b>735,485</b>
C.1	Banked RECs Applied to 2017 New Obligations (from B.2)	58,796
C.2	2017 New RECs Applied to 2017 New Obligations (subset of B.1)	676,689
C.3	Alternative Compliance Payment Credits Applied to 2017 New RES Obligations	0
C.4	Outstanding Obligation (RECs or ACPs)	0
<b>D</b>	<b>Banked RECs Available for Compliance Year 2018 or 2019</b>	
D.1	Remaining RECs Available after Meeting New RES Obligations (B – B.2 – C.2 – D.4)	67,469
D.2	2017 New RECs Applied to 2017 Existing RES Obligations	363
D.3	2017 RECs Banked for Future Use in Compliance Years 2018 or 2019	67,106 <sup>c</sup>
D.4	2017 New RECs Purchased above 30% Banking Cap (not eligible for banking)	3,338
<b>Existing RES Obligations and Existing Renewable Energy Certificates</b>		
<b>E</b>	<b>Existing RES Obligations (2.0% of “A”)</b>	<b>154,850</b>
E.1	2017 Existing RECs Applied to 2017 Existing RES Obligations	152,991
E.2	2017 New RECs Applied to 2017 Existing RES Obligations (from D.2)	363
E.3	Alternative Compliance Payment Credits Applied to 2017 Existing RES Obligations	1,496
E.4	Outstanding Obligation (RECs or ACPs)	0
<b>F</b>	<b>Total 2017 Existing RECs Settled in Rhode Island</b>	<b>157,356</b>
F.1	2017 Existing and New RECs Applied to 2017 Existing RES Obligations (E.1 plus E.2)	153,354
F.2	2017 Existing RECs Purchased above 2017 RES Obligations (not eligible for banking)	4,365
<p>a. Values may not be additive due to rounding protocol with individual Obligated Entities.</p> <p>b. Includes previously-banked and newly-minted RECs and excludes RECs purchased on behalf of end-use customers for voluntary clean energy programs. See Appendix 4 for details on RECs purchased for voluntary programs.</p> <p>c. This figure represents newly-banked RECs. It does not include 9,677 previously-banked RECs that were not used for compliance in 2017 and may still be used for compliance in 2018, but after which they will expire.</p>		

For Compliance Year 2017, RECs were used to meet 100% of Rhode Island’s New RES obligation (Figure 2). The total number of New RECs retired by Obligated Entities was 806,292, including 58,796 RECs banked from Compliance Year 2015 or 2016 and 67,106 New RECs (minted in 2017) that were banked for use toward compliance in either Compliance Year 2018 or 2019. Notably, banking is capped at 30% of an Obligated Entity’s Compliance Year obligation for New RECs, and two Obligated Entities combined to

retire 3,338 more New RECs than were eligible under that cap.<sup>10</sup> The total RECs retired represents a 9.6% surplus compared to the 2017 New RES obligation for all Obligated Entities and is significantly higher than the 8.9% and 7.4% surpluses for Compliance Years 2016 and 2015, respectively. This surplus in New RECs reflects a sustained increase in regional renewable energy supply through the construction of additional capacity and the retrofitting of existing resources throughout the NEPOOL region, as well as a significant increase in the quantity of RES-eligible imports during this period.

**Figure 2: Distribution of Compliance Sources for 2017 New and Existing RES Obligations**



Over 99% of the State’s 2017 Existing or New RES obligation was met through retiring RECs (Figure 2), with one Obligated Entity complying through ACPs. In total, Obligated Entities combined to procure an excess of 4,365 RECs above their individual 2017 Existing REC requirement that are ineligible for banking. Reducing this number by the ACPs made by a single supplier (to compensate the State for their 1,496 Existing-REC shortfall), there was a combined total of 2,869 RECs representing a 1.9% surplus.<sup>11</sup> Unlike New RECs, banking of Existing RECs is not allowed under Rhode Island’s Renewable Energy Standard Rules and Regulations.

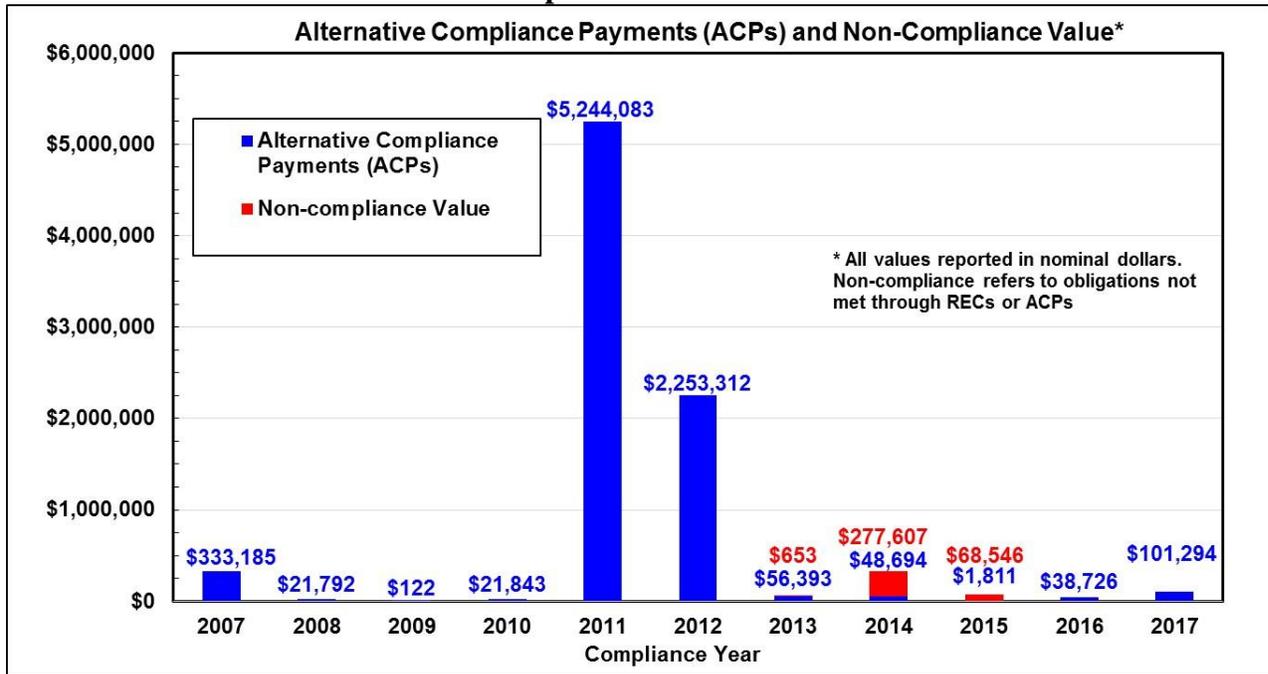
Taken as a whole, there was a New and Existing REC surplus among Obligated Entities. Taken individually, one Obligated Entity chose to comply, partially, by making ACPs totaling approximately \$101,294 in lieu of retiring 1,496 Existing (or New) RECs.<sup>12</sup> This continues a recent trend of relatively low total ACP costs paid by Obligated Entities (Figure 3).

<sup>10</sup> It is possible that these companies injudiciously over-procured New RECs or they purchased these RECs intentionally for some other purpose.

<sup>11</sup> National Grid was not one of the entities that procured more RECs than were eligible for banking. It is possible that the companies that did so injudiciously over-procured RECs or they purchased these RECs intentionally for some other purpose.

<sup>12</sup> In Compliance Year 2017, ACPs in lieu of both New and Existing RECs are valued at \$67.71 per MWh.

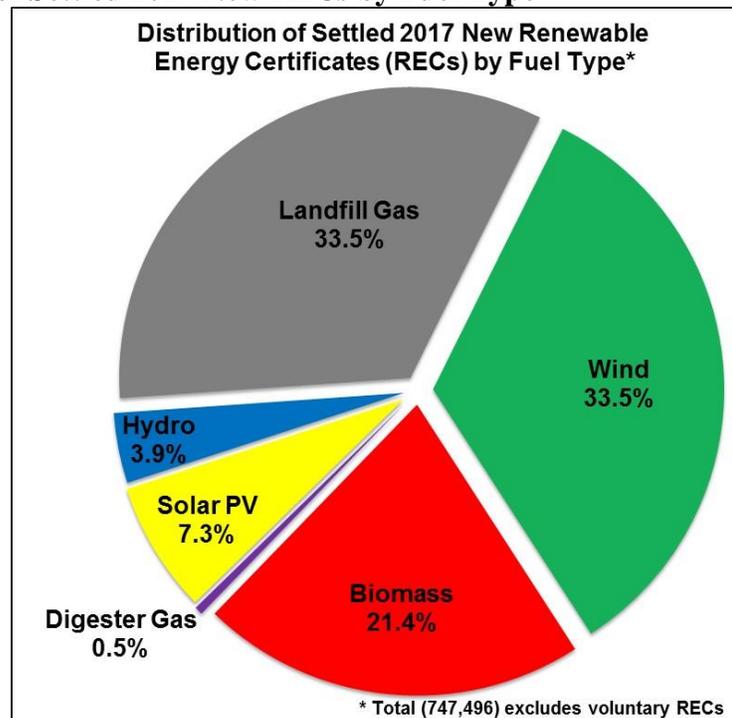
**Figure 3: Total Annual ACPs and Non-Compliance Value**



### III. 2017 RES Compliance by Fuel Type and Geographic Location

New RECs minted, purchased, and settled in Compliance Year 2017 were generated by six types of renewable energy generators: biomass, digester gas, hydroelectric, landfill gas, solar photovoltaic, and wind (Figure 4).<sup>13</sup> For the first time since Compliance Year 2012, most of the New RECs were generated by wind-powered facilities (33.5%), with slightly less generated by facilities fueled with landfill gas (33.5%). The remaining New RECs were generated by biomass (21.4%), solar photovoltaic (7.3%), hydroelectric (3.9%), and digester gas (0.5%) facilities. In terms of resource location, most of the New RECs settled in 2017 were sourced from Rhode Island (52.3%) with the rest coming from Maine (23.2%), New Hampshire (9.4%), New York imports (8.7%); Massachusetts (3.7%), and Vermont (2.8%), with no RECs having been sourced from Connecticut (Figure 5).

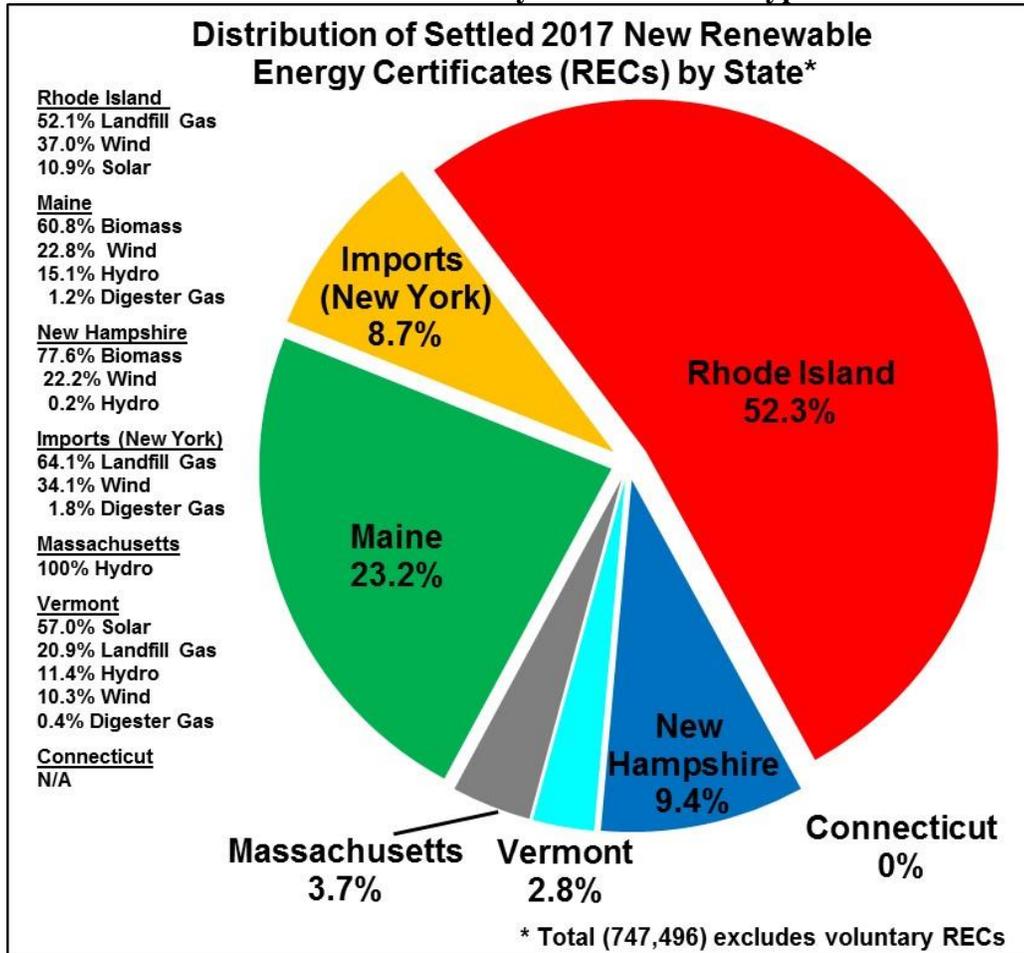
**Figure 4: Distribution of Settled 2017 New RECs by Fuel Type**



In Compliance Year 2017 the resource type with the largest gain in New RECs was wind, adding an additional 88,634 New RECs over the number retired in Compliance Year 2016 (Figure 6). The next largest increase was from solar photovoltaic (solar PV) resources, up 28,182 RECs from Compliance Year 2016. Notably, this amount represents a 107% increase in New solar PV RECs, and moves solar PV ahead of hydroelectric as the fourth most prominent resource for meeting compliance with the RES. Meanwhile, New RECs obtained from facilities located in Rhode Island increased sharply by 147,018 (Figure 7). This 60% increase in Rhode Island-sourced RECs is significant because the 2017 New Obligation across all Obligated Entities only increased 111,124 MWh from Compliance Year 2016. In other words, on a cumulative basis, enough incremental New RECs were sourced from Rhode Island to supply 132% of the annual increase in the RES.

<sup>13</sup> Not all of the New RECs purchased and settled in Compliance Year 2017 were used to meet Compliance Year 2017 obligations. Some RECs were banked for use in Compliance Years 2018 and 2019, while others were purchased in excess of the obligation. This summary of New resources excludes RECs retired for the purpose of substantiating renewable energy claims associated with voluntary purchases to serve clean energy choices of end-use customers above and beyond the RES. Voluntary clean energy programs are summarized in Appendix 6 of this Report.

**Figure 5: Distribution of Settled 2017 New RECs by State and Fuel Type**



The surge of New RECs sourced from Rhode Island, and of wind as a resource, is largely driven by a single project, Deepwater Wind’s offshore Block Island Wind Farm, Rhode Island. Pursuant to R.I. Gen. Laws § 39-26.1-7, the Deepwater Wind executed a power purchase agreement (PPA) with National Grid that was filed for approval with the PUC in June 2010.<sup>14</sup> The plant achieved commercial operation in December 2016. Thus, the Block Island Wind Farm’s first full year of operation was Compliance Year 2017, during which National Grid would have expected the plant’s annual energy output to be 123,516 MWh.<sup>15</sup> The PPA included the sale of RECs generated from the offshore wind farm, all of which in turn were sold to Standard Offer Service energy supply customers to help meet National Grid’s 2017 RES obligation.<sup>16</sup> Therefore, the plant was expected to produce approximately 16.8% of the 735,485 New REC-obligation in Compliance

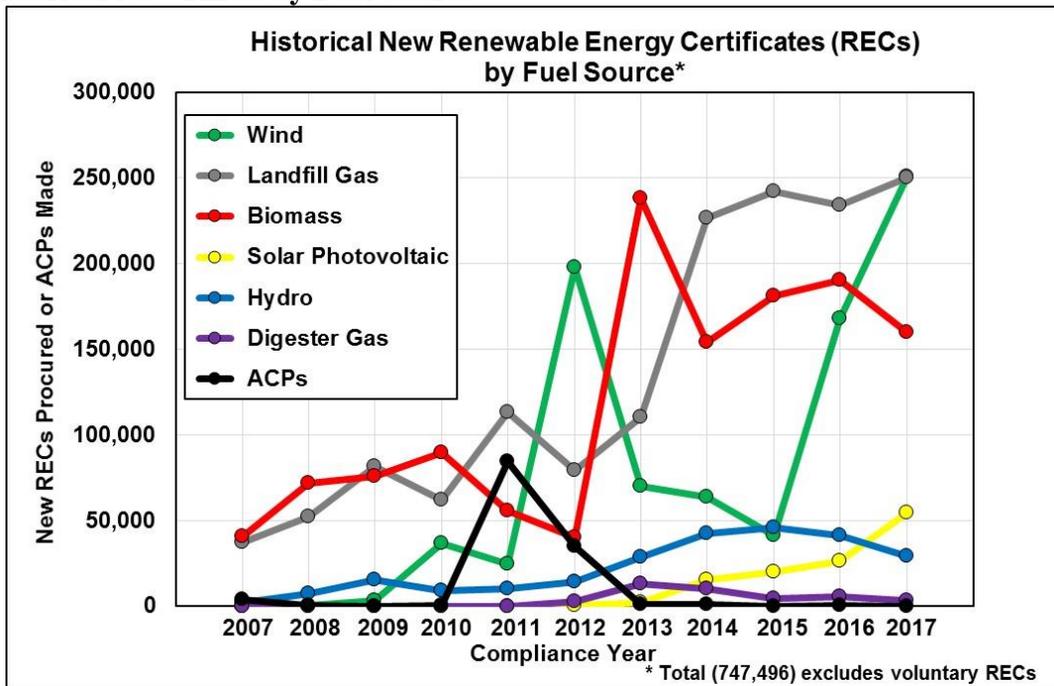
<sup>14</sup> The PPA was reviewed in PUC Docket No. 4185. See <http://www.ripuc.org/eventsactions/docket/4185page.html>.

<sup>15</sup> See, e.g., National Grid Long-Term Contracting for Renewable Energy Recovery Factor 2017, Docket No. 4673, Attachment 1 at 2, [http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER\(11-14-16\).pdf](http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER(11-14-16).pdf).

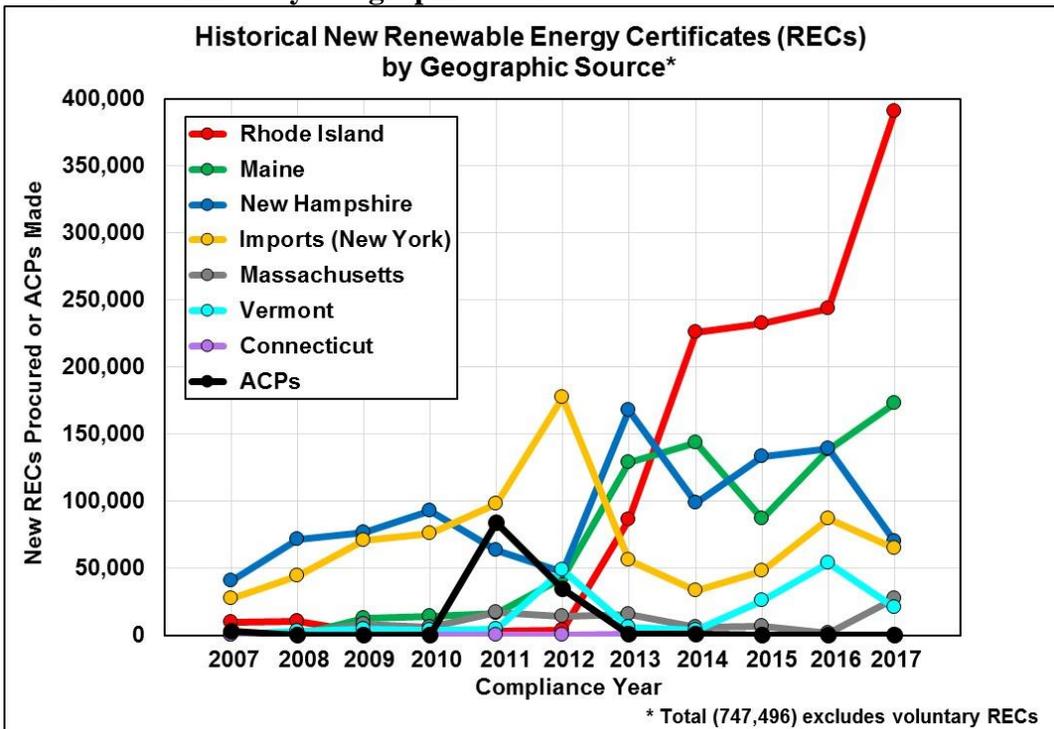
<sup>16</sup> In March 2016, National Grid filed a RES compliance plan for Compliance Year 2017 that included using all RECs from all contracts signed pursuant to R.I. Gen. Laws § 39-26.1 and § 39-26.2 to meet the RES obligation for Standard Offer Service customers, and later amended that compliance plan to include using RECs from tariff projects enrolled in the Renewable Energy Growth Program pursuant to R.I. Gen Laws § 39-26.6. See National Grid 2017 Standard Offer Service Procurement Plan 2017 Renewable Energy Standard Procurement Plan Docket No. 4605, Schedule 7, [http://www.ripuc.org/eventsactions/docket/4605-NGrid-2017-SOS-RES-Plans\\_3-1-16.pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-2017-SOS-RES-Plans_3-1-16.pdf) and National Grid’s March 23, 2017 Motion to Amend the 2016-2017 RES Plans, [http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER-July2017\(5-15-17\).pdf](http://www.ripuc.org/eventsactions/docket/4673-NGrid-LTCRER-July2017(5-15-17).pdf).

Year 2017. Indeed, approximately 19.4% of New RECs were sourced from wind facilities located in Rhode Island, most of which were generated by the Block Island Wind Farm.<sup>17</sup>

**Figure 6: Historical New RECs by Fuel Source**



**Figure 7: Historical New RECs by Geographic Source**



<sup>17</sup> In Compliance Year 2017 there were multiple wind facilities operating throughout Rhode Island that may have sold their RECs to buyers in other states or to entities voluntarily purchasing RECs over and above the RES minimum. For this reason, most of the wind RECs sourced from Rhode Island were from the Block Island Wind Farm.

The doubling increase in New solar PV RECs was primarily driven by the output of resources in Rhode Island (the only other New solar PV RECs retired were from Vermont). The proliferation of these resources is being driven by National Grid's statutory long-term contracting and feed-in tariff programs,<sup>18</sup> as well as traditional rooftop and remote net metering projects. These programs are expected to continue the increase in Rhode Island-eligible solar PV resources, but it is not clear if those resources' RECs will be sold and retired for compliance in Rhode Island or used for some other purpose.

Altogether, the historical view of the number of New RECs procured from all jurisdictions is presented in Figure 6, along with ACPs for comparison.<sup>19</sup> While this chart does not show exactly which RECs were used for compliance and which were banked for future compliance, this view does help illustrate the continued reliance on RECs from Rhode Island and a sustained lack of reliance on ACPs in Compliance Year 2017.

In Compliance Year 2017, for the first time in RES history, some of the Existing RECs purchased and settled were generated by a resource type other than hydroelectric generators. Biomass facilities in Maine contributed about 0.5% of the total Existing RECs, with the remaining 99.5% being sourced from hydroelectric facilities. This year, the Existing RECs were sourced from Maine (80.6%), Massachusetts (13.4%), New Hampshire (5.1%), Rhode Island (0.5%), and Vermont (0.4%).<sup>20</sup>

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<sup>18</sup> R.I. Gen. Laws § 39-26.1, § 39-26.2, and § 39-26.6.

<sup>19</sup> Appendix 5 contains additional information of historical data for the distribution of New and Existing RECs by fuel type and location for 2007 through 2016.

<sup>20</sup> These percentages include reported purchases for voluntary programs and over-compliance.

## IV. Renewable Energy Standard – Future Obligations

The RES enabling legislation at §39-26-4 establishes annual targets for both New and Existing RES obligations through 2035. At § 39-26-4(a)(3), the enabling legislation provides for an additional one percent (1.0%) of “retail electricity sales in each of the following compliance years 2011, 2012, 2013, 2014, provided that the commission has determined the adequacy, or potential adequacy, of renewable energy supplies to meet these percentage requirements.” At § 39-26-4(a)(4), the legislation provides for an additional 1.5% per year through 2035, resulting in a final target of 38.5% renewable energy, with a similar requirement that the PUC periodically determine the adequacy of supply.<sup>21</sup>

The way the PUC fulfilled the requirement to determine supply adequacy, as well as the timing and implications of the PUC’s decision-making authority, is articulated in the RES Regulations under § 39-26-6(d). In a January 2010 Order for Docket No. 4050, the PUC determined that adequate renewable energy supplies existed to meet the RES target increase scheduled for 2011. Additional information on this proceeding and the PUC’s complete Order can be found at the PUC website.<sup>22</sup> In a February 2014 Order for Docket No. 4404, the PUC determined there was potential inadequacy of renewable energy supply to meet the target increase of 1.5% scheduled for 2015. The result of this determination was to delay the scheduled increase in the RES by a period of one year, thereby capping the escalation of the New RES target at 12.5% rather than 14.0% (with an additional 2.0% to come from Existing or New RECs). Additional information on this proceeding and the PUC’s complete Order can be found at the PUC website.<sup>23</sup> In 2016, the RES statute was amended to require annual increases of 1.5% to continue from 2020 through 2035, resulting in a final target of 38.5% renewable energy. Per the RES statute, the PUC conducted an adequacy review beginning in December of 2018. In that review the PUC found that there is likely to be adequate renewable energy supply to meet the RES increase in Compliance Year 2020 and maintained the scheduled RES increase.<sup>24</sup>

The percentage targets shown above in Figure 1 (see Section I) and in the calculated future RES obligations shown below in Table 3 are adjusted to reflect the PUC’s one-year delay of the 1.5% increase to Compliance Year 2015 and the RES amendments of 2016 that increase the targets through 2035. The quantity (in MWh) of future years’ RES obligations are estimated by multiplying the forecasted value of total obligated sales in Rhode Island by the RES target for each year. The forecast of Rhode Island’s obligated sales is based on the Forecast Data File of ISO-NE’s 2018 Capacity, Energy, Loads, and Transmission (CELT) Report<sup>25</sup> and exempted load, including some wholesale transmission losses, as well as both Pascoag Utility District and Block Island Power Company retail sales.<sup>26</sup>

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<sup>21</sup> R.I. Gen. Laws §§ 39-26-1 to 10, as amended, does not explicitly maintain a RES proportion in 2036 and thereafter.

<sup>22</sup> For additional information, refer to materials filed in Commission Docket No. 4050 at: [www.ripuc.org/eventsactions/docket/4050page.html](http://www.ripuc.org/eventsactions/docket/4050page.html)

<sup>23</sup> For additional information, refer to materials filed in Commission Docket No. 4404 at: <http://www.ripuc.org/eventsactions/docket/4404page.html>. In particular, Commission Report and Order No. 21353 can be viewed at: [http://www.ripuc.org/eventsactions/docket/4404-RES-Adequacy-Ord21353\\_2-10-14.pdf](http://www.ripuc.org/eventsactions/docket/4404-RES-Adequacy-Ord21353_2-10-14.pdf).

<sup>24</sup> For additional information, refer to materials filed in Commission Docket No. 4903 at: [http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381%20\(1-4-19\).pdf](http://www.ripuc.org/eventsactions/docket/4903-RESAdequacy-Ord23381%20(1-4-19).pdf)

<sup>25</sup> ISO-NE 2018 CELT Forecast Data. See tab 2, column X– GROSS-PV-PDR, Gross Energy in gigawatt-hours less Behind-the-Meter PV and Passive Demand Resources. ISO-NE 2018 Forecast Data File, available at [https://www.iso-ne.com/static-assets/documents/2018/09/forecast\\_data\\_2018.xlsx](https://www.iso-ne.com/static-assets/documents/2018/09/forecast_data_2018.xlsx).

<sup>26</sup> The analysis includes an assumption that 2.5% of the forecasted load served in Rhode Island is exempted from the RES in all future years, including the energy used by Block Island Power Company and Pascoag Utility District customers.

**Table 3: Forecast of RES Compliance Year Obligations for New and Existing Resources**

<b>Compliance Year</b>	<b>Actual/Forecasted RES-Obligated Retail Sales <sup>a</sup> (MWhs)</b>	<b>Minimum MWhs from New Renewable Energy Resources <sup>b</sup> (per Figure 1 targets)<sup>c</sup></b>	<b>MWhs from <i>either</i> New <i>or</i> Existing Renewable Energy Resources <sup>b</sup> (2.0%)</b>
2007 (Actual)	8,335,706	83,357	166,715
2008 (Actual)	8,279,006	124,190	165,584
2009 (Actual)	7,910,112	158,212	158,212
2010 (Actual)	8,242,937	206,082	164,866
2011 (Actual)	8,157,796	285,531	163,165
2012 (Actual)	8,123,025	365,545	162,469
2013 (Actual)	8,193,979	450,678	163,891
2014 (Actual)	7,985,473	519,067	159,720
2015 (Actual) <sup>d</sup>	8,018,905	521,243	160,392
2016 (Actual)	7,954,467	636,372	159,103
2017 (Actual)	7,741,800	735,485	154,850
2018	7,683,000	845,000	154,000
2019	7,430,000	929,000	149,000
2020 <sup>e</sup>	7,186,000	1,006,000	144,000
2021	6,991,000	1,084,000	140,000
2022	6,824,000	1,160,000	136,000
2023	6,673,000	1,234,000	133,000
2024	6,535,000	1,307,000	131,000
2025	6,419,000	1,380,000	128,000
2026	6,328,000	1,455,000	127,000
2027 <sup>f</sup>	6,260,000	1,534,000	125,000

<sup>a</sup> Based on 2017 ISO-NE CELT forecast and assumes 2.5% of load exempted from RES obligation in future years.  
<sup>b</sup> Note that the total New and Existing RES obligations are slightly higher than the % New and % Existing of total obligated retail sales due to rounding protocols for individual Obligated Entities.  
<sup>c</sup> The annual targets are also listed in Table A5 of Appendix 5.  
<sup>d</sup> After conducting a review pursuant to R.I. Gen. Laws § 39-26-6(d), in Docket No. 4404, the PUC delayed implementation of the scheduled 1.5% increase in 2015. This resulted in a delay of all subsequent increases for a period of one year.  
<sup>e</sup> The RES was amended in 2016 to continue with a 1.5% increase annually from 2020 to 2035.  
<sup>f</sup> The 2018 ISO-NE CELT forecast ends in 2027.

## V. Authorized Rate Increases and RES Compliance Costs

Per R.I. Gen. Laws § 39-26-6(b), the PUC is required to authorize rate recovery by electric distribution companies for prudent incremental costs arising from the RES, including the purchase of RECs, the payment of ACPs, required payments to support the NEPOOL GIS, assessments made for the Renewable Energy Development Fund pursuant to R.I. Gen. Laws § 39-26-7(c), and the incremental costs of complying with energy source disclosure requirements. To track the recovery of these costs, R.I. Gen. Laws § 39-26-6(f) requires that the annual Report includes the amount of rate increases authorized pursuant to subsection (b), described above. The only electric distribution company that qualifies as an Obligated Entity is National Grid, as the statutory definition of “Obligated Entity” specifically excludes Block Island Power Company and the Pascoag Utility District.<sup>27</sup>

**Table 4: Estimated Rate Impact of RES Compliance to National Grid SOS (Energy) Customers**

Effective Date	Projected REC Procurement Cost (per kWh) <sup>a</sup>	Adder for previous and current costs (per kWh)	Authorized RES Charge (per kWh)	Monthly & Annual Charge to 500-kWh Ratepayer
April 2019 – Report Date	0.00183	(\$0.00120)	\$0.00063	\$0.32   \$3.78
April 2018 – March 2019	\$0.00190	(\$0.00186)	\$0.00004	\$0.02   \$0.24
April 2017 – March 2018	\$0.00264	(\$0.00224)	\$0.00040	\$0.20/\$2.40
April 2016 – March 2017	\$0.00405	(\$0.00117)	\$0.00288	\$1.44   \$17.28
April 2015 – March 2016	\$0.00366	(\$0.00072)	\$0.00294	\$1.47   \$17.64
April 2014 – March 2015	\$0.00430	\$0.00050	\$0.00480	\$2.40   \$28.80
April 2013 – March 2014	\$0.00371	\$0.00141	\$0.00512	\$2.56   \$30.72
April 2012 – March 2013	\$0.00209	\$0.00044	\$0.00253	\$1.265   \$15.18
April 2011 – March 2012	\$0.00064	(\$0.00095)	(\$0.00031)	(\$0.156)   (\$1.86)
March 2010 – March 2011	\$0.00095	\$0.00028	\$0.00123	\$0.615   \$7.38
January 2009 – February 2010	\$0.00105	(\$0.00012)	\$0.00093	\$0.465   \$5.58
2008	\$0.00084	<sup>b</sup>	\$0.00084	\$0.42   \$5.04
2007	\$0.00062	N/A	\$0.00062	\$0.31   \$3.72

<sup>a</sup> The projected REC procurement cost is for current year costs; i.e., the projected compliance rate for Compliance Year 2017 was \$0.00264/kWh and was collected from April 2017 through March 2018.

<sup>b</sup> In 2008, a specific RES reconciliation charge was not proposed in the RES Charge filing. Reconciliation of over- or under-collection would have occurred through Standard Offer Service and Last Resort Service reconciliation filings.

<sup>27</sup> R.I. Gen. Laws § 39-26-2(16).

Regarding National Grid's rates, it is important to note that the company generally has two types of distribution customers: customers who get their energy supply from National Grid's Standard Offer Service and customers who get their energy supply from a competitive supplier. Only Standard Offer Service customers pay National Grid's charges related to RES compliance. These Standard Offer Service customers accounted for approximately 53% of the energy used in Rhode Island in 2017. RES compliance costs (and related rates) of competitive suppliers for providing the remaining 47% of energy is unknown.

Early in each calendar year, National Grid proposes a RES charge designed to collect the costs of RES compliance for Standard Offer Service customers during the upcoming compliance year, outstanding costs for the remainder of the current compliance year, and to true up any outstanding cumulative under- or over-collection made during previous compliance years.<sup>28</sup> The reconciling nature of this charge ensures that when compliance costs are lower than National Grid anticipates, the over-collections are returned to ratepayers. Symmetrically, when compliance costs are higher than anticipated, National Grid can recover under-collections.

Table 4 provides data on the authorized RES charge (in dollars per kWh) billed to National Grid's Standard Offer Service customers from 2007 through this Report date, as well as the total charges to a 500-kWh Residential Class ratepayer by month and year (*see also* the blue line on Figure 8). The factors of the approved charge are based on projected market conditions, anticipated REC pricing, estimates of electricity consumption, and estimates of market share, among other prudent considerations.<sup>29</sup> Projected cost for the upcoming compliance year (mostly controlled by cost to procure New RECs rather than the cost to procure Existing RECs) is found in the second column; the reconciliation factor for previous compliance years is found in the third column. The charge of \$0.00040 per kWh, effective April 1, 2017 through March 31, 2018, comprises a \$0.00264 per kWh factor for projected costs for Compliance Year 2017 and a negative \$0.00224 reconciliation factor for a cumulative over-collection of costs for previous years, including costs for Compliance Year 2016 (*see* the yellow row in Table 4). This charge represents an approximately 86% decrease in the RES charge authorized in 2016.

While this Report focuses on Compliance Year 2017, it should be noted that in April 2018, the RES charge was reduced again to \$0.00004 per kWh. The decrease reflects National Grid's decreasing cost to comply with the RES plus a relatively significant over-collection factor. In February 2019, National Grid filed to increase the factor to \$.00063 per kWh for affect April 1, 2018, which was approved by the PUC.<sup>30</sup> This increase is mostly due to a decrease in the magnitude of the over-collection (a negative value) factor for previous Compliance Years, which more than offset the projected decrease of cost for Compliance Year 2019 compared to Compliance Year 2018.

National Grid successfully executed its proposed REC procurement plan for Compliance Year 2017. Based on the data reported below in Table 5 and in Appendix 2 Table A2, for Compliance Year 2017, National Grid procured Rhode Island-eligible New RECs at an average price of approximately \$14.20 per New REC.

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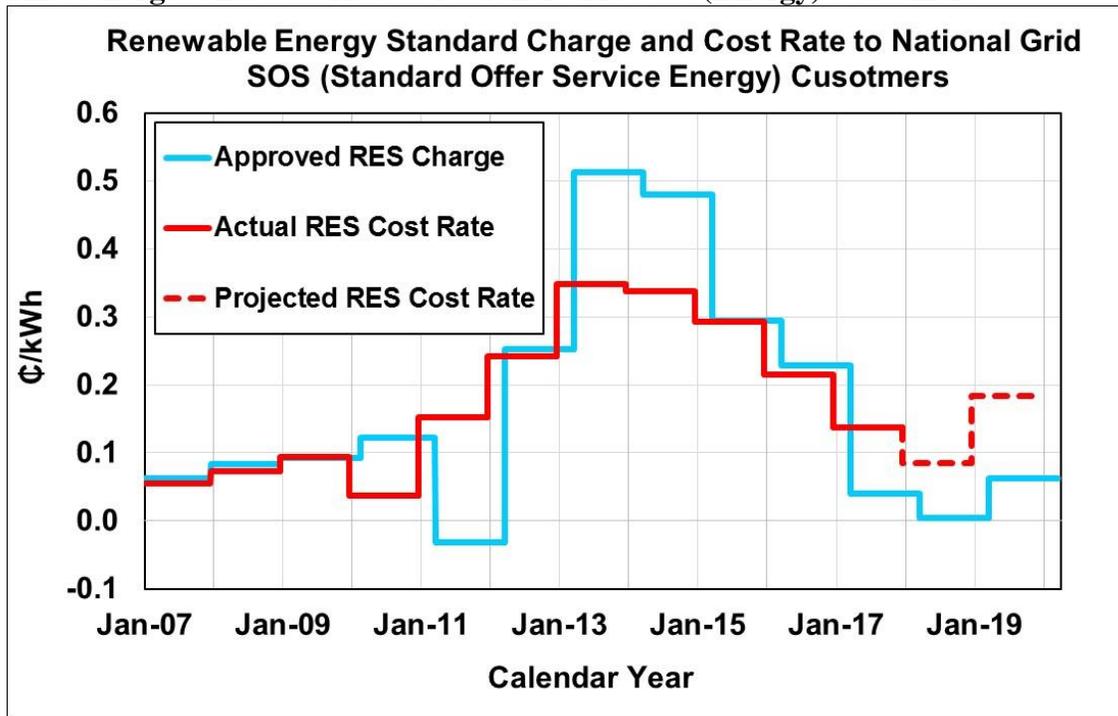
<sup>28</sup> National Grid typically files for rate change to the Renewable Energy Charge in late winter for effect on April 1<sup>st</sup>. Therefore the timing of changes in the RES charge occurs three months into the Compliance Year, and three months before the REC trading year turns over. For the 2017 example, *see here*: [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

<sup>29</sup> For additional information regarding 2017 projections and charges, refer to National Grid's "2017 Renewable Energy Standard Charge and Reconciliation," Attachment 1, [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf).

<sup>30</sup> National Grid's "2018 Renewable Energy Standard Charge and Reconciliation," Attachment 1, [http://www.ripuc.org/eventsactions/docket/4692-NGrid-RESReconciliation2018\\_2-27-18.pdf](http://www.ripuc.org/eventsactions/docket/4692-NGrid-RESReconciliation2018_2-27-18.pdf).

This is below National Grid’s February 2017 projection of \$25.88 per New REC <sup>31</sup> and well below the ACP level of \$67.71. National Grid’s most recent estimate of New REC prices is an average cost of \$13.35 per New REC in Compliance Year 2019.<sup>32</sup>

**Figure 8: RES Charges and Cost Rate to National Grid SOS (Energy) Customers**



For Compliance Year 2017, most of the RECs National Grid purchased to fulfill the RES obligation incurred by their Standard Offer Service customers were from renewable generation projects that have long-term renewable energy power purchase agreements (PPAs) with National Grid pursuant to R.I. Gen. Laws § 39-26.1 and § 39-26.2. National Grid also uses RECs generated by projects enrolled in the Renewable Energy Growth Program (RE Growth Program) feed-in tariff (R.I. Gen. Laws § 39-26.6). As part of these programs, project owners receive a contract or tariff price payment from National Grid, and National Grid receives the projects’ energy and REC generation.<sup>33</sup>

Importantly, the costs of these programs’ projects are paid for by charges to all National Grid’s distribution customers, which includes both Standard Offer Service customers and competitive supply customers. Thus, simply retiring these RECs on behalf of Standard Offer Service customers would deprive competitive supply customers of the value of the RECs from these programs (for which they are also charged). To prevent this inequity, each quarter National Grid collects spot market data regarding New REC prices in the Rhode Island-eligible market and uses that to provide an estimated spot market value for the RECs from the PPAs and RE Growth Program. This estimated spot market rate is then charged to Standard Offer Supply energy customers for the RECs generated by the PPA and RE Growth Program resources that quarter.

<sup>31</sup> National Grid 2017 Renewable Energy Standard Charge and Reconciliation, Attachment 1, [http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation\(2-24-17\).pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-RESReconciliation(2-24-17).pdf)

<sup>32</sup> National Grid 2019 Renewable Energy Standard Charge and Reconciliation, Attachment 1, [http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES%20Reconciliation%20\(PUC%202-27-19\).pdf](http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES%20Reconciliation%20(PUC%202-27-19).pdf).

<sup>33</sup> Some PPAs and all RE Growth Program arrangements include transfer of the project’s capacity value from the project to National Grid.

Meanwhile, the revenue from that charge to Standard Offer Service customers is used to offset the cost of the PPAs and RE Growth Program to benefit all National Grid’s distribution customers.<sup>34</sup>

**Table 5: Summary of National Grid's RES Compliance Costs, 2007 through 2017**

<b>Compliance Year</b>	<b>Total RES Costs (Millions)<sup>a</sup></b>	<b>New REC Costs (Millions)<sup>a</sup></b>	<b>Existing REC Costs (Millions)<sup>a</sup></b>	<b>ACP Costs (Millions)</b>	<b>Obligated Load (MWh)</b>
2017	\$5.65	\$5.53	\$0.12	\$0	4,097,802
2016	\$9.20	\$9.10	\$0.10	\$0	4,282,268
2015	\$13.88	\$13.80	\$0.08	\$0	4,773,192
2014	\$18.00	\$17.93	\$0.07	\$0	5,317,349
2013	\$18.96	\$18.90	\$0.06	\$0	5,541,409
2012	\$12.80	\$12.75	\$0.05	\$0	5,272,388
2011	\$8.43	\$3.85	\$0.05	\$4.53	5,554,272
2010	\$2.07	\$2.02	\$0.05	\$0	5,695,951
2009	\$5.51	\$5.28	\$0.22	\$0	5,902,667
2008	\$5.21	\$5.02	\$0.19	\$0	7,123,559
2007	\$3.97	\$3.79	\$0.19	\$0	7,177,538

<sup>a</sup> Total RES costs reported here are based on data provided by National Grid to PUC staff. These values represent the funds expended by National Grid in a given Compliance Year. The costs associated with banked RECs are incurred and included in the Compliance Year during which the RECs are used for compliance, rather than the year in which the RECs are procured and retired.

National Grid’s remaining REC needs are purchased through a request-for-proposal procurement process approved annually by the PUC through a docketed proceeding.<sup>35</sup> In addition to RES charges and rate impacts, a more accurate and complete picture of compliance costs includes REC procurement expenses, since these reflect actual costs rather than projected costs and reconciliations. To meet its 2017 New and Existing RES obligations, National Grid incurred \$5.65 million in compliance costs (Table 5; Figure 9).<sup>36</sup> This is a decrease of approximately 38.6% from the cost incurred to comply with 2016 RES targets (\$9.20 million). This decrease in compliance cost to National Grid likely reflects an increasing supply in Rhode Island-eligible New RECs relative to demand for these RECs. As described above in Section II, this reasoning is supported by the reported surplus in New RECs retired by Obligated Entities and a low reliance on ACPs in Compliance Year 2017.

Finally, during the trading period for Compliance Year 2017, Standard Offer Service customers were charged (and distribution customers were credited) approximately \$5.49 million for New RECs minted and purchased through National Grid’s PPAs and RE Growth Program, as described above.<sup>37</sup> This cost

<sup>34</sup> The remaining over- or under-recovery for these PPAs is then reconciled through a charge to all National Grid distribution ratepayers. Distribution customers are all electric customers in National Grid’s territory; Standard Offer Supply customers are the subset of distribution customers that buy their energy supply from National Grid rather than from a competitive supplier.

<sup>35</sup> See, e.g., National Grid 2017 Standard Offer Service Procurement Plan 2017 Renewable Energy Standard Procurement Plan Docket No. 4605, Schedule 7, [http://www.ripuc.org/eventsactions/docket/4605-NGrid-2017-SOS-RES-Plans\\_3-1-16.pdf](http://www.ripuc.org/eventsactions/docket/4605-NGrid-2017-SOS-RES-Plans_3-1-16.pdf) and National Grid’s March 23, 2017 Motion to Amend the 2016-2017 RES Plans, [http://www.ripuc.org/eventsactions/docket/4556-4605-NGrid-AmendRES\\_2-23-17.pdf](http://www.ripuc.org/eventsactions/docket/4556-4605-NGrid-AmendRES_2-23-17.pdf).

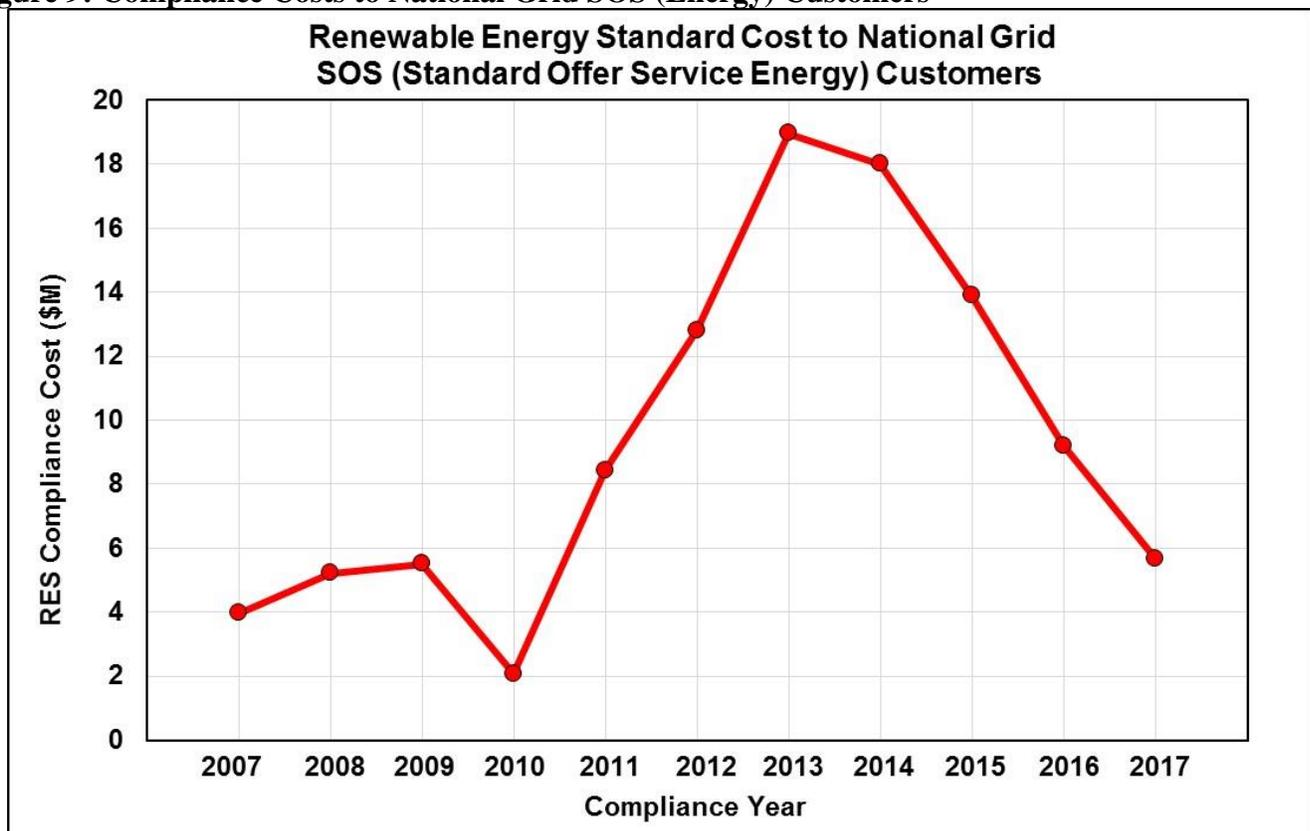
<sup>36</sup> This value is based on communications with National Grid and may include the costs of RECs purchased and banked in an earlier Compliance Year that were later used for compliance in Compliance Year 2017, among other minor factors. See also note <sup>a</sup> in Table 5.

<sup>37</sup> Underlying data comes from National Grid 2019 Renewable Energy Standard (RES) Charge and Reconciliation, Docket No. 4805, Attachment 2 at 2, [http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES\\_Reconciliation\\_\(PUC\\_2-27-19\).pdf](http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES_Reconciliation_(PUC_2-27-19).pdf), and

represents approximately 99.3% of the New REC cost in Compliance Year 2017 reported in Table 5, although it must be noted that some of these RECs may have been banked for future use rather than used in Compliance Year 2017.

The actual cost rate of compliance for National Grid’s Standard Offer Service customers was lower than originally projected. The final cost rate of the 2017 RES obligation to National Grid’s Standard Offer Service energy customers, calculated as 2017 Total RES Costs divided by Obligated Load reported in Table 5,<sup>38</sup> was approximately \$0.00138/kWh in Compliance Year 2017, whereas National Grid’s original projection was \$0.00264/kWh (Table 4). This continues a steady decrease that began in Compliance Year 2014 (see the red line on Figure 7). Similarly, National Grid originally projected 2018 RES costs would be \$0.00190/kWh, but data contained in National Grid’s 2019 Renewable Energy Standard Charge and Reconciliation filing in PUC Docket No. 4809<sup>39</sup> signals that the final Compliance Year 2018 cost rate may be nearer to \$0.00085/kWh, which is illustrated by the first dashed segment of the cost rate line (drawn in red) in Figure 8.<sup>40</sup> National Grid projects the cost rate will increase in Compliance Year 2019 (Figure 8 and Table 4).

**Figure 9: Compliance Costs to National Grid SOS (Energy) Customers**



National Grid 2018 Renewable Energy Standard (RES) Charge and Reconciliation, Docket No. 4692, Attachment 2 at 1, [http://www.ripuc.org/eventsactions/docket/4692-NGrid-RESReconciliation2018\\_2-27-18.pdf](http://www.ripuc.org/eventsactions/docket/4692-NGrid-RESReconciliation2018_2-27-18.pdf).

<sup>38</sup> Cost rate, as defined here, is not the same as the price of New RECs since the total cost also includes cost for Existing RECs.

<sup>39</sup> National Grid 2019 Renewable Energy Standard (RES) Charge and Reconciliation, Docket No. 4809, Attachment 2 at 4, [http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES Reconciliation \(PUC 2-27-19\).pdf](http://www.ripuc.org/eventsactions/docket/4809-NGrid-RES Reconciliation (PUC 2-27-19).pdf).

<sup>40</sup> As of the filing and Report date, National Grid may still be incurring costs for compliance in Compliance Year 2018.

Notably, National Grid projects that the company will have more New RECs supplied through long-term renewable energy contracts (PPAs) and the RE Growth Program than their projected annual New REC obligation.<sup>41</sup> National Grid's most recent and current RES Procurement Plans include the option to sell RECs into the regional market should the amount of RECs from the contracts and RE Growth Program exceed the company's obligation and banking allowance.<sup>42</sup>

It is again noted that the data in this section of the report only represents expenses incurred by Standard Offer Service customers of National Grid, accounting for approximately 53% of all obligated retail energy use in 2017. Competitive energy suppliers served the remaining 47% of obligated energy use, and the PUC does not have access to compliance costs for these Obligated Entities.<sup>43</sup> Lacking data from these businesses, it can still be presumed that a possible surplus for New RECs among all Obligated Entities would potentially lower compliance costs to competitive energy suppliers. It also is noted that National Grid passes unpredicted savings and expenses resulting from changes in the REC market onto Standard Offer Service customers and distribution customers. Competitive energy suppliers, on the other hand, may pass some of the REC market risk to their company's profits and losses rather than pass it onto their customers dollar-for-dollar. Finally, in addition to the costs enumerated above, the Commission incurred at least \$130,000 in expenses related solely to the administration of the RES for Compliance Year 2017.

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<sup>41</sup> See, e.g., National Grid 2018 Renewable Energy Standard Procurement Plan, Docket No. 4692 at 3, [http://www.ripuc.org/eventsactions/docket/4692-NGrid-2018-RES-ProcurementPlan\(3-1-17\).pdf](http://www.ripuc.org/eventsactions/docket/4692-NGrid-2018-RES-ProcurementPlan(3-1-17).pdf).

<sup>42</sup> Per R.I. Gen. Laws § 39-26-6(a)(3)(ii), banking of excess compliance in a compliance year is allowed for two subsequent compliance years and is capped at 30% of the current compliance year's obligation. For the current REC sales plan, see National Grid's 2019 Standard Offer Service (SOS) Procurement Plan and 2019 Renewable Energy Standard (RES) Procurement Plan, Schedule 7; [http://www.ripuc.org/eventsactions/docket/4809-NGrid-2019-SOS-RES-Plans\(3-1-18\).pdf](http://www.ripuc.org/eventsactions/docket/4809-NGrid-2019-SOS-RES-Plans(3-1-18).pdf).

<sup>43</sup> The share of obligated energy served by competitive suppliers increased from 33.4% in 2014, to 40.5% in 2015, to 46.2% in 2016, to 47% in 2017.

## VI. Renewable Energy Standard Implementation in New England

The RES enabling legislation requests a report on “the status of the implementation of the renewable energy standards in Rhode Island **and other states.**” [Emphasis added.] This section provides an update on the implementation of similar programs in the other five New England states.

All six New England states have active Renewable Energy Standards (RES, as known in Rhode Island and Vermont) or Renewable Portfolio Standards (RPS, as known in Massachusetts, Connecticut, New Hampshire, and Maine). Each of the established RES programs (referring to both RES and RPS programs) has multiple classes<sup>44</sup> that are used to differentiate each state’s compliance obligations (and programmatic objectives) by technology, vintage, emissions, or other characteristics. Class I requirements (equivalent to Rhode Island’s “New” RES obligation) focus on supply that has either been constructed after a specified date or which meets maximum emissions thresholds, as well as other eligibility criteria. Existing RES requirements<sup>45</sup> generally focus on supply that was in operation prior to the creation of the applicable state’s RES program. Compliance targets set minimum obligations for the purchase of energy from certified sources. New/Class I targets are intended to spur new development and construction. Existing/Class II/III/IV targets are generally intended to provide enough incentive to maintain economic viability within the existing renewable energy fleet.

In addition to distinguishing between New and Existing renewable energy obligations, some RES programs include specific requirements for solar, biomass, hydroelectric, combined heat and power (CHP), waste-to-energy, thermal resources, and energy efficiency. These technology-specific requirements are implemented differently, by state. In Massachusetts, the solar obligation has historically been calculated annually and subtracted from the Class I requirement. This is referred to as a carve-out. New Hampshire’s solar requirement was not implemented as a carve-out; it stands alone as the Class II obligation. Connecticut has a Class III requirement for conservation and load management resources, as well as CHP. Massachusetts has two Class II requirements. One is specific to Waste-to-Energy facilities, while the other is intended for existing resources more generally. Massachusetts also has an Alternative Energy Portfolio Standard (APS) for CHP, flywheel storage, coal gasification, and efficient steam technologies. Connecticut has incentive programs for zero- and low-emission distributed energy systems, as well as a residential solar program. While not explicitly within Connecticut’s RES, these programs effectively create solar and fuel cell “carve-outs” within Connecticut’s Class I RPS.

The remainder of this section focuses exclusively on the class or portion of each state’s RES requirement that is most analogous to Rhode Island’s New RES requirement, including the interaction between these classes and other classes in certain limited circumstances.

### **Massachusetts**

Massachusetts has New England’s longest-running RES. Since its inception in 2002, the Massachusetts Class I market has experienced periods of shortage, equilibrium, and surplus – producing a wide range of REC prices, Alternative Compliance Payment collections, and compliance costs. Due to unequal distribution of RECs and banking, some Obligated Entities hold surpluses even during times of overall market equilibrium or shortage, while others make ACPs. Table 6 summarizes aggregate Massachusetts Class I ACPs from 2004 to 2016.

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<sup>44</sup> Referred to as “Tiers” in Vermont.

<sup>45</sup> Including Class II in Massachusetts, Connecticut, and Maine; Class III and Class IV in New Hampshire; ; Tier 1 in Vermont; and Existing in Rhode Island.

The Massachusetts Department of Energy Resources (MA DOER) also administers a Class I solar carve-out. Eligible facilities generate SRECs for ten years (which are used to demonstrate compliance with the carve-out) and generate Class 1 RECs thereafter. MA DOER finalized the regulations for the SREC successor program, known as the Solar Massachusetts Renewable Target (SMART) in 2017. SMART is a declining-block incentive program for an additional 1,600 MW of solar facilities. SMART is not a carve-out; eligible facilities generate Class 1 RECs.

In 2018, Massachusetts enacted legislation to increase the annual RES target increase from 1.0% to 2% annually between 2020 and 2029. Target increases revert to 1% annually thereafter. The same bill also created a Clean Peak Energy Standard to require a minimum percentage of retail electricity sales during peak hours to come from “clean peak resources,” which include new Class I or Class II resources (with or without energy storage) and demand response resources.

Other legislative efforts in Massachusetts have focused on long-term renewable energy contracting through the regulated distribution utilities. Massachusetts has thus far contracted for 800 MW of offshore wind, and 9.45 million MWh of hydroelectric generation through its Section 83C and 83D procurements, respectively. Massachusetts is expected to release a solicitation for another 800 MW of offshore wind in 2019. In addition, the legislature directed MA DOER to study the impacts of procuring an additional 1,600 MW of offshore wind.

### **Connecticut**

Connecticut had its first RES compliance year in 2004. Due to differences between its RES eligibility standards compared to the rest of the region (Connecticut does not have a vintage requirement, except for hydroelectric, which must be run-of-river post July 1, 2003), Connecticut has historically had access to a larger pool of eligible supply. As RES targets increase over time, however, new supply is required to fulfill New England’s aggregate obligations, leaving all states to compete for marginal supply. This has led to a convergence in regional REC prices over the last several years, including CT Class 1. Competition notwithstanding, the regional Class 1 market is currently characterized by surplus. As a result, ACPs made for compliance in Connecticut have decreased significantly since their peak in 2012, as reported in Table 6.

In May 2018, Connecticut enacted Public Act 18-50, which increased the Connecticut RPS Class I requirements 1.5% per year between 2019 and 2022 and 2% per year thereafter, resulting in a 40% Class I requirement by 2030. The Act reduces the Class I Penalty Payment from \$55/MWh to \$40/MWh starting in 2021. The Act also expands Class I eligibility to include zero-emission waste heat generators and any run-of-river hydroelectric facilities relicensed by FERC after January 1, 2018<sup>46</sup>.

Connecticut released an RFP in January 2018 pursuant to its authority under Section 8 of Public Act 13-303 to solicit generation from offshore wind, fuel cells, and anaerobic digestion. The Connecticut Department of Energy and Environmental Protection (CT DEEP) announced the selection of a total of 253.6 MW of projects in June 2018, including 200 MW from the Revolution Wind offshore wind project (400 MW of which was also selected by Rhode Island out of Massachusetts’ offshore wind solicitation), as well as four fuel cell projects and one anaerobic digestion project. Connecticut Public Utilities Regulatory Authority (PURA) approved the power purchase agreements filed by the electric distribution companies in December 2018. Additionally, Connecticut issued a Zero Carbon Energy RFP in July 2018 for up to 12 million MWh of zero-carbon energy and associated environmental attributes pursuant to its authority under Public Act 17-3. CT DEEP announced the selection of projects in December 2018. Most of the energy to be procured would be from the Millstone and Seabrook nuclear power stations, but CT DEEP also selected a 100 MW

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<sup>46</sup> The use of post-1/1/2018 FERC re-licensed hydro for RPS compliance is capped at 1% of CT load.

expansion of the Revolution Wind offshore wind project and nine solar projects, each 15-20 MW, located throughout New England. If all contracts are approved by PURA, Connecticut will retain authority to procure additional renewable energy, up to 17% of its total load.

### **Maine**

Maine’s first Class I RES<sup>47</sup> compliance year was 2008. Maine has broader Class I eligibility criteria than the other New England states, resulting in ample supply to fill Class I demand. Beginning in 2011, the certification of refurbished biomass projects (whose RES eligibility is unique to Maine) caused a sharp decline in both Maine Class I REC prices and ACP collections, as shown in Table 6.

In recent years, Maine has supported both new “community-based” renewable energy projects and existing biomass projects through several competitive, long-term contracting programs. In 2019 Maine is expected to consider additional procurement programs, as well as changes to Class 1 demand targets.

**Table 6: Summary of New England States' RES ACP/Penalty Payment Collections**

<b>Year</b>	<b>MA (\$M)</b>	<b>CT (\$M)</b>	<b>RI (\$M)</b>	<b>ME (\$M)</b>	<b>NH <sup>a</sup> (\$M)</b>	<b>VT (\$M)</b>
2005	\$19.6	\$0.0	NA	NA	NA	NA
2006	\$17.8	\$3.5	NA	NA	NA	NA
2007	\$0.6	\$0.1	\$0.333	NA	NA	NA
2008	\$0.1	\$0.1	\$0.022	\$0.7	NA	NA
2009	\$0.0	\$0.05	\$0.0001	\$0.3	\$0.0	NA
2010	\$0.2	\$3.0	\$0.022	\$0.3	\$0.03	NA
2011	\$6.6	\$22.0	\$5.24	\$0.05	\$2.2	NA
2012	\$16.4	\$39.0	\$2.25	\$0.002	\$3.0	NA
2013	\$2.1	\$31.0	\$0.056	\$0.004	\$14.0	NA
2014	\$0.4	\$7.0	\$0.049	\$0.2	\$0.9	NA
2015	\$0.6	\$2.0	\$0.002	\$0.003	\$1.2	NA
2016	\$0.02	\$1.4	\$0.038	-	\$1.2	NA
2017	-	-	\$0.101	-	\$2.2	\$0.0 <sup>b</sup>

<sup>a</sup> Includes Class I and Class I Thermal ACP

<sup>b</sup> The Vermont Department of Public Service’s 2019 Report on the Renewable Energy Standard describes a single \$10 payment for one Tier 1 REC. See [https://publicservice.vermont.gov/sites/dps/files/documents/2019 Annual Report on the RES.pdf](https://publicservice.vermont.gov/sites/dps/files/documents/2019%20Annual%20Report%20on%20the%20RES.pdf) for more information.

### **New Hampshire**

New Hampshire’s first compliance year for Class I was 2009. In 2017, New Hampshire’s RES statute was amended, and changes included increasing the ACP for Class III facilities in compliance years 2017, 2018 and 2019 from \$45 to \$55. For compliance years after 2019, ACPs will be set by using the Consumer Price Index to modify the prior year’s rate.

In 2018, the New Hampshire Public Utilities Commission initiated an investigation and stakeholder process to consider forward-looking adjustments to the RES. The process resulted in a PUC Report to the legislature in November 2018. The legislature is expected to consider potential RES adjustments during the 2019 session.

<sup>47</sup> Maine has had an “Existing” RPS requirement since 2000. An abundance of qualifying in-state supply has enabled the state to easily satisfy this requirement each year.

## **Vermont**

Vermont’s RES has both Total Renewable Energy and Distributed Renewable Generation requirements. The minimum obligation for Total Renewable Energy is 55.0% of each retail electricity provider’s electricity sales during the year beginning on January 1, 2017, increasing to 75.0% on January 1, 2032. The target will maintain at 75.0% thereafter. It is expected that this obligation can be met with existing resources. For Distributed Renewable Generation, which more closely resembles the New Renewable Energy Resources requirement of the Rhode Island RES, the minimum obligation is set at 1.0% for the year beginning January 1, 2017, increasing to 10.0% on January 1, 2032 and thereafter. The Distributed Renewable Generation obligation must be satisfied by eligible renewable energy facilities under five MW and interconnected to Vermont’s distribution system.

## **Summary Projection of Regional RES Targets and Demand**

On a whole, New England’s RES targets and the associated demand for renewable energy are projected to increase over the next ten years. Table 7 provides a summary of “New” RES targets throughout New England. Table 8 provides an estimate of the corresponding gigawatt-hours (GWh) of “New” RES demand through 2027. The forecasted RES obligations are based upon ISO-NE’s forecast of Annual Energy Net of Behind-the-Meter PV and Passive Demand Resources, found in their 2018 CELT Report,<sup>48</sup> and adjusted to exclude an estimate of public or other utilities and load exempted from the states’ RES obligations. For example, some transmission losses and both Pascoag Utility District and Block Island Power Company have been removed from the forecast of Rhode Island REC demand.

Massachusetts and Connecticut represent the majority of New England’s RES demand through 2027 (Figure 10). In 2017, these two states accounted for 44.5% and 33.9% of demand, respectively. Rhode Island represented 6.0% of the region’s 2017 New Renewable RES demand (Figure 11). By 2027, the allocation of New Renewable RES demand across the region is projected as follows: Massachusetts – 47.6%; Connecticut – 35.6%; Rhode Island – 5.8%; New Hampshire – 5.3%; Vermont – 1.3%; and Maine – 4.4% (Figure 12).

**Table 7: Projection of New England States' New RES Demand (%)**

<b>Year</b>	<b>MA Class I</b>	<b>CT Class I</b>	<b>RI New</b>	<b>VT DG</b>	<b>ME Class I</b>	<b>NH Class I</b>
2017	12.0%	15.5%	9.5%	1.0%	10.0%	6.8%
2018	13.0%	17.0%	11.0%	1.6%	10.0%	7.5%
2019	14.0%	19.5%	12.5%	2.2%	10.0%	8.2%
2020	16.0%	21.0%	14.0%	2.8%	10.0%	8.9%
2021	18.0%	22.5%	15.5%	3.4%	10.0%	9.6%
2022	20.0%	24.0%	17.0%	4.0%	10.0%	10.3%
2023	22.0%	26.0%	18.5%	4.6%	10.0%	11.0%
2024	24.0%	28.0%	20.0%	5.2%	10.0%	11.9%
2025	26.0%	30.0%	21.5%	5.8%	10.0%	12.8%
2026	28.0%	32.0%	23.0%	6.4%	10.0%	13.3%
2027	30.0%	34.0%	24.5%	7.0%	10.0%	13.8%

<sup>48</sup> The ISO-NE 2018 CELT Report is available at: <http://www.iso-ne.com/system-planning/system-plans-studies/celt>. Additional data can be found in the ISO-NE 2018 Forecast Data File, available at [https://www.iso-ne.com/static-assets/documents/2018/09/forecast\\_data\\_2018.xlsx](https://www.iso-ne.com/static-assets/documents/2018/09/forecast_data_2018.xlsx)

**Table 8: Projection of New England States' New RES Demand (GWh)**

Year	MA Class I	CT Class I	RI New	VT DG	ME Class I	NH Class I	Total
2017	5,482	4,180	738	56	1,145	717	12,318
2018	6,102	4,744	845	93	1,161	820	13,765
2019	6,444	5,404	929	126	1,154	897	14,954
2020	7,201	5,752	1,006	157	1,144	969	16,229
2021	7,972	6,105	1,084	187	1,144	1,045	17,537
2022	8,745	6,466	1,160	217	1,148	1,123	18,859
2023	9,524	6,966	1,234	246	1,154	1,201	20,325
2024	10,294	7,461	1,307	275	1,160	1,301	21,798
2025	11,070	7,953	1,380	303	1,165	1,400	23,271
2026	11,870	8,451	1,455	330	1,171	1,457	24,734
2027	12,690	8,953	1,534	358	1,179	1,515	26,229

**Figure 10: Forecast of New England States' New or Class I RES Obligations (GWh)**

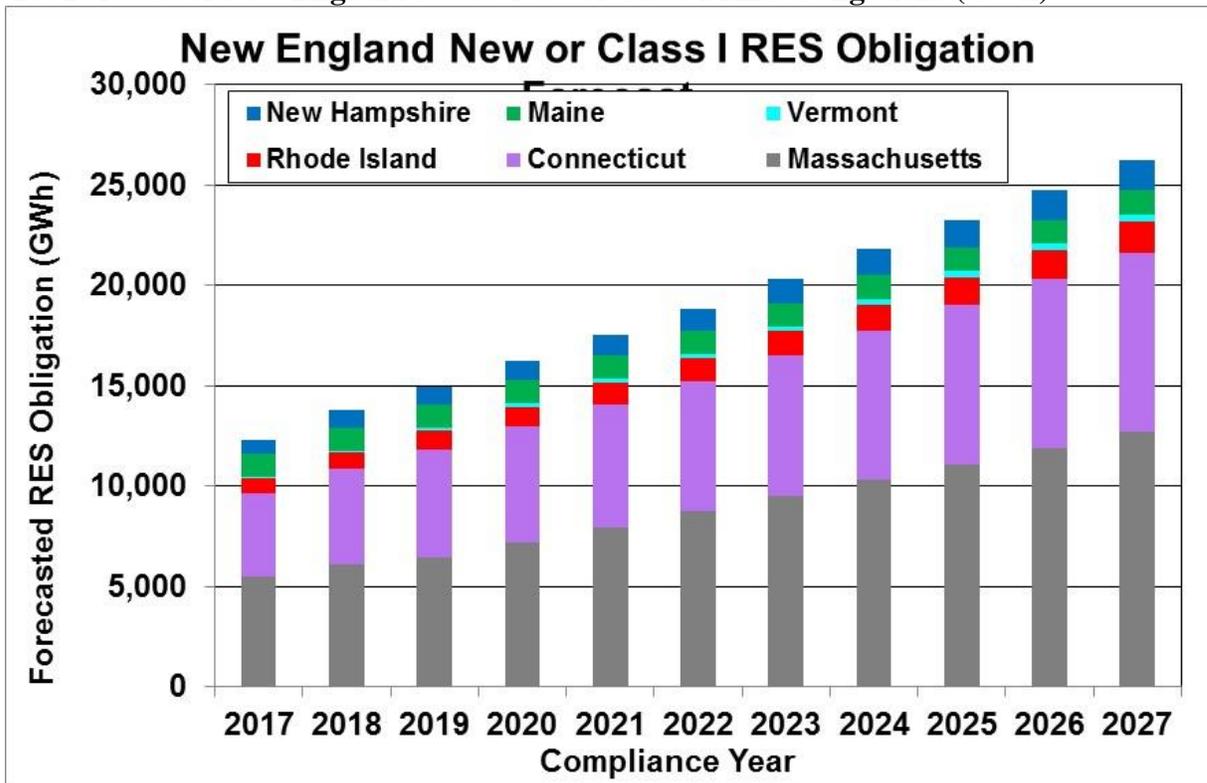


Figure 11: 2017 Aggregate New England New or Class I RES Demand

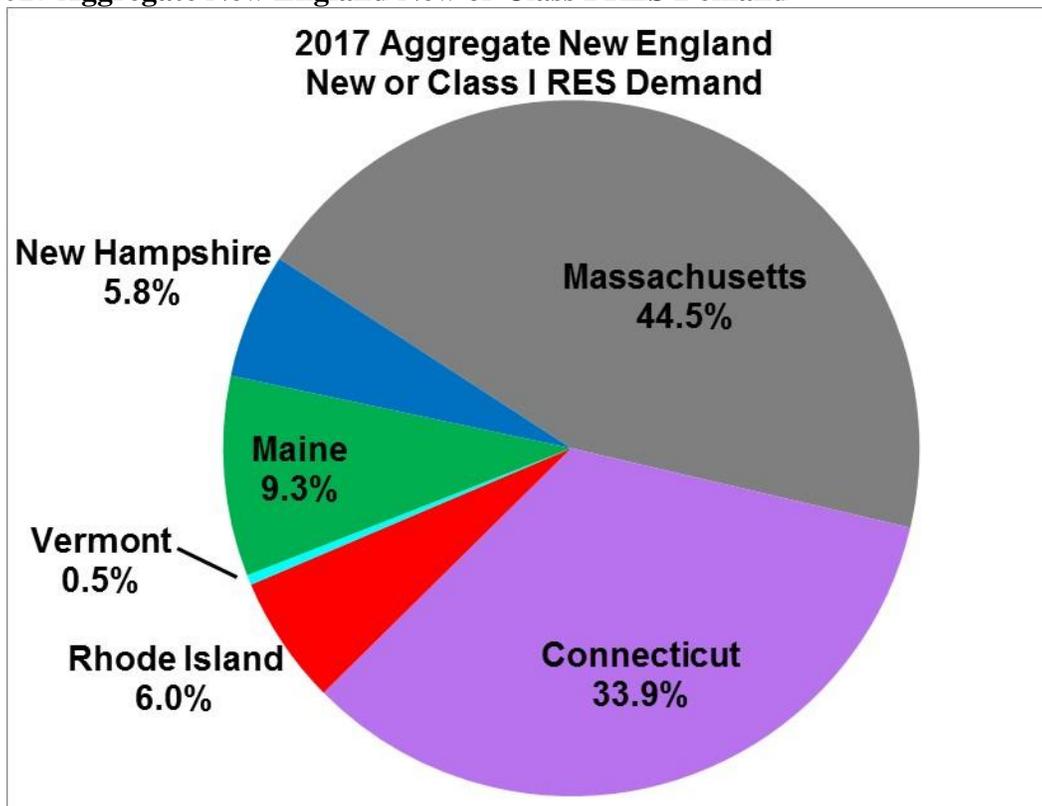
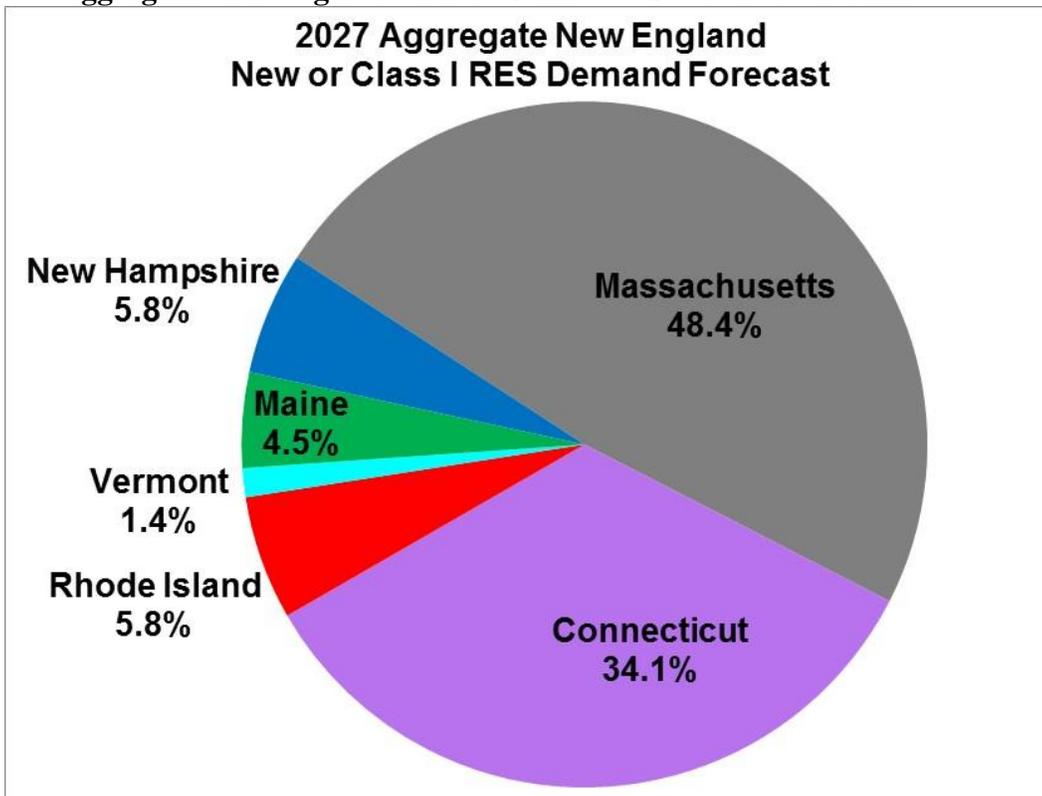


Figure 12: 2027 Aggregate New England New or Class I RES Demand Forecast



## VII. Continuing and Developing Issues Related to the RES

This section of the Report describes important issues that the PUC has identified, worked on, and in some cases, resolved, in its role of administering and regulating the RES. The issues here are particularly relevant to the time since the last Report was published but may span multiple Compliance Years.

### **Non-Compliance**

In Compliance Year 2013, the first known instance of an Obligated Entity's failure to comply with its RES Obligation occurred. Non-compliance occurred again in Compliance Years 2014 and 2015. After reviewing these cases, the PUC was concerned its authority to ensure compliance at the end of a Compliance Year, when the Obligated Entities' data can be collected, was limited. In 2016, state law was amended to require nonregulated power producers to post financial assurance, subject to forfeiture, for failure to comply with consumer protection rules and laws, as well as for non-compliance with RES rules and laws.<sup>49</sup> The Division of Public Utilities and Carriers has promulgated regulations regarding these new requirements.<sup>50</sup> The PUC is pleased to report that there was no instance of non-compliance in Compliance Years 2016 and 2017.

### **Energy Source Disclosure and Voluntary REC purchases**

The Renewable Energy Standard Act requires the PUC to "establish and enforce right-to-know regulations requiring any [O]bligated [E]ntity to distribute energy source disclosures to all customers of each electrical energy product offered."<sup>51</sup> The PUC is currently working to improve Obligated Entities' (non-regulated power producers') understanding of this requirement, as well as ensure that energy customers understand what energy products they have purchased.

Beginning in 2015 and continuing through the Report date, the PUC has noted that some non-regulated power producers in the residential market were advertising up to 100% renewable energy products at prices very near or below National Grid's Standard Offer Supply rate, which, for example, was only 11.5% renewable during 2017. Upon receiving the RES compliance filings of these Obligated Entities, the number of voluntary RECs retired by these same suppliers (if any) were vastly insufficient to achieve the high percentage of renewable energy advertised. Furthermore, the Energy Source Disclosure labels that were filed with the PUC by many of these Obligated Entities did not reflect the advertised percentages.

The apparent inconsistencies could have several explanations. One possible explanation is that these products advertised were not actually sold to customers. Another is that the products were sold, but the Obligated Entities are not properly disaggregating these sales from their other energy products. Yet another is that the companies are using other tradable renewable commodities that are generated outside of the NEPOOL GIS renewable market to deliver the energy as advertised, and do not report the use of these commodities to the PUC or on their Energy Source Disclosure label. Regarding this possibility, we note that the Energy Source Disclosure rules require that "NE-GIS certificates shall be used for the calculation of the Energy source disclosure."<sup>52</sup>

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<sup>49</sup> See R.I. Gen. Laws § 39-1-27.1(c)(9), as amended by 2016 P.L 483; 2016 P.L 487.

<sup>50</sup> Rules Applicable to Nonregulated Power Producers, effective March 7, 2018, [http://www.ripuc.org/rulesregs/divrules/Rules\\_Applicatate\\_NPP.pdf](http://www.ripuc.org/rulesregs/divrules/Rules_Applicatate_NPP.pdf) and Nonregulated Power Producer Consumer Bill of Rights, effective April 12, 2018, <http://www.ripuc.org/rulesregs/divrules/npp%20bill%20of%20rights.pdf>.

<sup>51</sup> R.I. Gen. Laws § 39-26-9(a).

<sup>52</sup> Rule V.D, Rules Governing Energy Source Disclosure; [http://www.ripuc.org/rulesregs/commrules/3642-FinalESD\(2-18-05\).pdf](http://www.ripuc.org/rulesregs/commrules/3642-FinalESD(2-18-05).pdf).

This year, the PUC found that the voluntary GreenUp program offered by National Grid, which predates the RES and Energy Source Disclosure statutes, may have some confusing attributes associated with it. GreenUp is a program that allows National Grid's Standard Offer Service energy customers to voluntarily purchase renewable energy supply products over and above the RES mandate through a GreenUp supplier of their choice. National Grid administers the program and includes a separate line item on GreenUp customers' bills for the additional costs of the voluntary purchases their GreenUp supplier makes on the customers' behalves. The GreenUp program, as approved by the PUC in Docket No. 3462, only requires the use of NEPOOL GIS RECs, which is a much larger pool than Rhode Island-eligible RECs.<sup>53</sup>

In addition to these RECs that are voluntarily purchased by GreenUp customers, National Grid also procures enough New and Existing RECs to satisfy the RES requirements for these same customers' energy use. Meanwhile, in administering the program, National Grid provides GreenUp suppliers their customers' loads quarterly, but does not reduce this load for the RECs National Grid also procures for this energy use. Therefore, GreenUp suppliers do not reduce the voluntary purchases by the RES percentage, and National Grid does not reduce their Standard Offer Service charges by the RES charge. Thus, from the point of view of the GreenUp customers, one might consider this to be procuring greater than 100% renewable energy (in the case of 2017, 111.5%).

This outcome could be confusing to customers and PUC staff believes it warrants further inquiry over the next year. PUC staff will also continue to examine how to understand and improve Energy Source Disclosure.

### **Green Gas**

The PUC continues to examine the use of "green" or "renewable" gas in other jurisdictions. This gas could be used to generate renewable electric energy or could be used to generate renewable thermal energy. For example, National Grid's long-term vision for cleaner gas and delivered fuels systems, as discussed in the company's *Northeast 80x50 Pathway* white paper, includes a brief reference to renewable and synthetic gas, as well as hydrogen.<sup>54</sup> In April 2019, National Grid formally responded to several information requests regarding the use of these cleaner gases in the PUC's review of the company's annual infrastructure filing.<sup>55</sup> Among other things, National Grid indicated pending proposals to develop synthetic gas and hydrogen blending demonstration projects in its New York jurisdictions.

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<sup>53</sup> See <http://www.ripuc.org/eventsactions/docket/3642page.html> for more information.

<sup>54</sup> See <http://news.nationalgridus.com/wp-content/uploads/2018/06/80x50-White-Paper-FINAL.pdf> for more information.

<sup>55</sup> Post-Hearing Data Requests – Set 3, National Grid's Proposed FY 2020 Gas Infrastructure, Safety, and Reliability Plan, Docket No. 4916, [http://www.ripuc.org/eventsactions/docket/4916-NGrid-PHDR3 \(PUC 4-24-19\).pdf](http://www.ripuc.org/eventsactions/docket/4916-NGrid-PHDR3 (PUC 4-24-19).pdf)

## VIII. Conclusion

Based upon the PUC's analysis of regulated utility data; competitive supplier data; and general market trends, the supply of, and demand for, Rhode Island-eligible New RECs were in equilibrium for the Compliance Year 2017, with a possibility that there was an oversupply of New RECs. The evidence for equilibrium or oversupply was manifested in several ways. First, there was low reliance on ACPs for RES compliance as in Compliance Year 2016. There was also a continued and significant increase in the banking of New RECs. Finally, there was a decrease in compliance costs for National Grid, which serves 53% of the obligated energy use and which was able to bank a significant number of RECs for future Compliance Years. It should be noted, however, that demand for RECs across the region is increasing, as states expand their renewable portfolio targets, and this regional demand could drive up compliance costs in Rhode Island.

Additionally, the increase of New Renewable Energy Resources has likely contributed to stabilizing and lowering compliance costs, and this trend continues today. Since the last RES Report, the PUC has approved or conditionally approved sixty-eight renewable energy facilities for RES certification with the RES eligibility designation of "New." These generators combined for approximately 576 MW of additional certified New nameplate capacity that are eligible to contribute to meeting the RES targets in Compliance Years 2018 and 2019. The PUC will continue to examine and report on these trends in future Reports.

The success of the state's Renewable Energy Standard and growth in the number of qualified renewable energy facilities since 2007 leaves the PUC cautiously optimistic that the RES and similar programs throughout New England will continue to spur renewable energy development in the region. It is important to note, however, that the continued availability of long-term contracts – for both large-scale and distributed resources – and access to renewable energy financing are important to sustaining regional RPS success. Based on recent policies established and revised within Rhode Island, the State remains in a good position to support local and regional renewable energy resource growth. These policies include long-term contracting statutes, the Renewable Energy Growth program, and cooperative long-term contracting initiatives between Massachusetts, Connecticut, and Rhode Island.

The PUC regards Compliance Year 2017 a success and the resources available in the marketplace as sufficient to meet RES demand. Notably, in December 2018, the PUC conducted a statutorily mandated adequacy review. In that review the PUC found that there is likely to be adequate renewable energy supply to meet the RES increase in Compliance Year 2020 and maintained the scheduled RES increase as set forth in the RES statute. In the coming year, the PUC will continue to monitor the regional renewable energy marketplace and the State's continued ability to achieve its established targets in a just and reasonable manner.

## Appendix 1: Alternative Compliance Payments

Section 7.3 of the Rhode Island Rules and Regulations Implementing a Renewable Energy Standard (RES Rules) permits Obligated Entities to meet the RES either through the purchase and retirement of NEPOOL GIS Certificates or through the provision of Alternative Compliance Payments (ACPs), obtained by making payment to the Rhode Island Commerce Corporation. The Rhode Island Commerce Corporation sets these funds aside in the Renewable Energy Development Fund to support renewable energy development. The ACP rate is the same for both New and Existing obligations.

Section 3.2 of the RES Rules states that ACPs must be made at a rate of \$50 per MWh of renewable energy obligation, in 2003 dollars, adjusted annually by the annual change in the United States Bureau of Labor Statistics' Consumer Price Index. Additionally, Section 7.9 of the Rules states that the PUC will publish the ACP rate by January 31 of each Compliance Year. For Compliance Year 2017, the ACP rate was \$67.71 per MWh of obligation.

**Table A1.1: Historical Rhode Island ACP Rate**

Compliance Year	ACP Rate
2007	\$57.12
2008	\$58.58
2009	\$60.92
2010	\$60.93
2011	\$62.13
2012	\$64.02
2013	\$65.27
2014	66.16
2015	\$67.07
2016	\$67.00
2017	\$67.71

Connecticut, Maine, Massachusetts, and New Hampshire all have similar ACP mechanisms. The Table below shows the 2017 ACP rates used by other New England states for the various REC classes defined in each state.

**Table A1.2: Regional ACP Rates for Compliance Year 2017**

2016 ACP Rates	CT	NH	MA	ME	VT
Class I	\$55	\$56.02	\$67.70	\$67.71	\$10.00
Class II	\$55	\$56.02	\$27.79	N/A	N/A
Class III	\$31	\$55.00	N/A	N/A	N/A
Class IV	N/A	\$27.49	N/A	N/A	N/A

## Appendix 2: Rhode Island RES 2017 Compliance Summary

**Table A2: 2017 Compliance Summary by Obligated Entity** <sup>56</sup>

Obligated Entity	Retail Sales (from filing)	RES Obligations (MWh)		NEPOOL GIS Certificates					Alternative Compliance Payments		"New" 2017 RECs Banked for Future Compliance
	Load (MWh)	9.5% "New" Obligation	2.0% "New" or "Existing" Obligation	"New" RECs	Banked from 2015 or 2016	Total "New" RECs	"Existing" RECs	"New" Applied to Existing	"New" (MWh)	"Existing" (MWh)	2017 RECs Eligible for 2018 or 2019
<b>Distribution Companies</b>											
Narragansett	4,097,802	389,292	81,957	394,632	2,447	397,079	81,957	0	0	0	7,787
<b>Competitive Suppliers</b>											
Agera Energy LLC											
Ambit Northeast, LLC											
Archer Energy, LLC											
Calpine Energy Solutions, LLC											
Champion Energy Services, LLC											
Clearview Electric, Inc.											
Consolidated Edison Solutions, Inc.											
Constellation Energy Services, Inc.											
Constellation NewEnergy, Inc.											
Devonshire Energy, LLC											
Direct Energy Business, LLC and Energy America, LLC											
Direct Energy Business Marketing											
Direct Energy Services											
Discount Power, Inc.											
EDF Energy Services											
ENGIE Resources, LLC											
ENGIE Retail, LLC d/b/a Think Energy											
First Point Power, LLC											
Liberty Power Holdings, LLC											
Mint Energy LLC											
Moore Energy, LLC											
NextEra Energy Services Rhode Island, LLC											
North American Power and Gas, LLC											
Public Power, LLC											
South Jersey Energy Company											
Town Square Energy, LLC											
TransCanada Power Marketing Ltd											
Viridian Energy, LLC											
XOOM Energy Rhode Island, LLC											
<b>Competitive Supplier Subtotal</b>	3,643,998	346,193	72,893	352,864	56,349	409,213	75,399	363	0	1,496	59,319
<b>Totals</b>	<b>7,741,800</b>	<b>735,485</b>	<b>154,850</b>	<b>747,496</b>	<b>58,796</b>	<b>806,292</b>	<b>157,356</b>	<b>363</b>	<b>0</b>	<b>1,496</b>	<b>67,106</b>

<sup>56</sup> The limited competitive supplier data presented in Appendix 2 is a result of the Commission's confidential treatment of competitive energy suppliers' filings. Information within this Report regarding competitive energy suppliers is presented in a summarized fashion to avoid the potential identification of proprietary business activities.

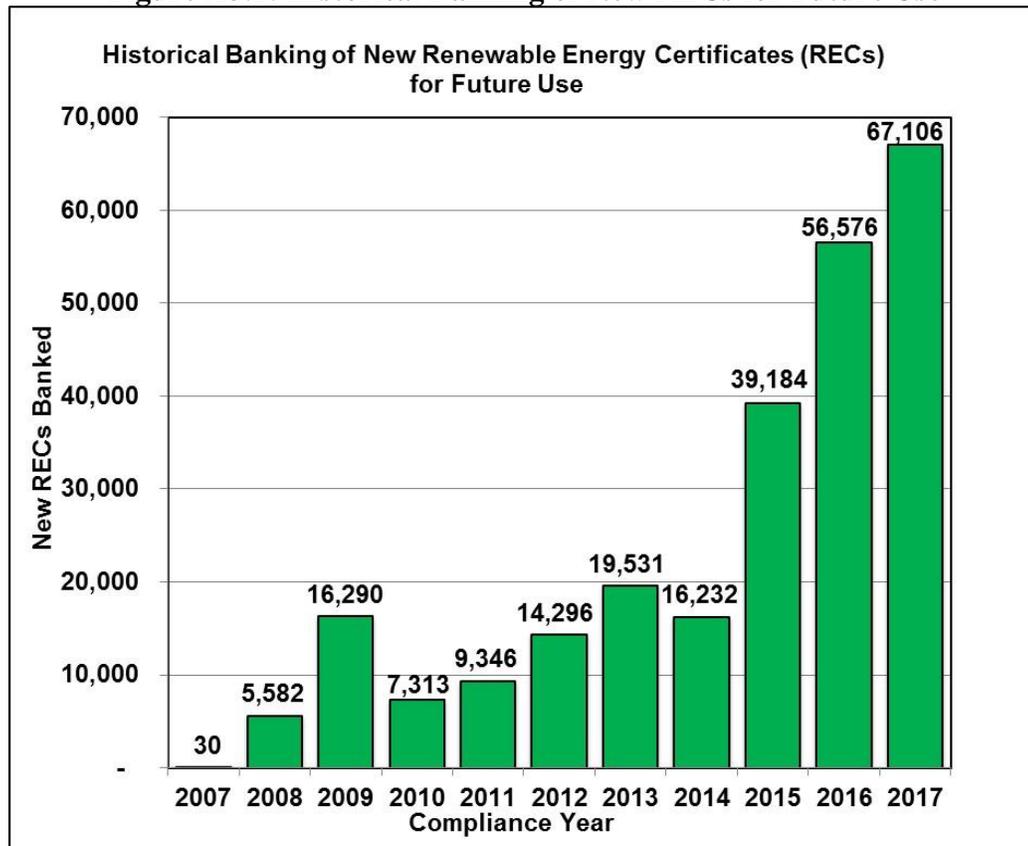
## Appendix 3: Historical Use of ACPs and Banking

The charts below provide additional detail on the breakdown of New and Existing RECs purchased by Rhode Island's Obligated Entities for the period 2007-2017.

**Table A3.1: Historic Utilization of Alternative Compliance Payments (ACPs)**

	New		Existing		Total	
	MWh	\$	MWh	\$	MWh	\$
<b>2007</b>	3,563	203,519	227	12,966	<b>3,790</b>	<b>216,485</b>
<b>2008</b>	295	17,281	77	4,511	<b>372</b>	<b>21,792</b>
<b>2009</b>	1	61	1	61	<b>2</b>	<b>122</b>
<b>2010</b>	192	11,699	166	10,114	<b>358</b>	<b>21,813</b>
<b>2011</b>	84,402	5,243,896	3	186	<b>84,405</b>	<b>5,244,083</b>
<b>2012</b>	35,195	2,253,184	2	128	<b>35,197</b>	<b>2,253,312</b>
<b>2013</b>	803	52,412	61	3,981	<b>864</b>	<b>56,393</b>
<b>2014</b>	732	48,429	4	265	<b>736</b>	<b>48,694</b>
<b>2015</b>	18	1,207	9	604	<b>27</b>	<b>1,811</b>
<b>2016</b>	576	38,592	2	134	<b>578</b>	<b>38,726</b>
<b>2017</b>	0	0	1496	101,294	<b>1496</b>	<b>101,294</b>

**Figure A3.1: Historical Banking of New RECs for Future Use**



## Appendix 4: Voluntary Clean Energy Programs

As a competitive retail electricity market, Rhode Island provides load serving entities with the opportunity to offer customized electric supply options to both their existing and prospective retail customers. One example of such an offer is for the voluntary purchase of renewable energy resources above and beyond the State’s minimum RES requirements. Collectively, the offers of such products are known as voluntary clean energy programs or as the voluntary green power market.<sup>57</sup> National Grid’s “GreenUp” program is just one example.

For Compliance Year 2017, National Grid reported the purchase of Rhode Island eligible RECs on behalf of end-use customers as part of voluntary clean energy programs. The table below provides a summary of the quantities of voluntary REC purchases made on behalf of customers.

**Table A4.1 History of Voluntary REC Purchases on Behalf of Rhode Island Customers**

<b>Voluntary New RECs</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Total	5,350	7,480	6,642	3,750	689	111	513	502	964	1,692
<i>National Grid</i>	5,161	6,833	4,366	1,474	689	111	513	502	964	1,692
<i>All Competitive Suppliers</i>	189	647	2,276	2,276	0	0	0	0	0	0
<b>Voluntary Existing RECs</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Total	7,624	2,603	0	0	538	2,181	119	718	759	1,007
<i>National Grid</i>	7,624	2,603	0	0	338	1,181	119	718	759	1,007
<i>All Competitive Suppliers</i>	0	0	0	0	200	1,000	0	0	0	0

The NEPOOL GIS Certificate, or REC, is the currency used to demonstrate compliance not only with the mandatory RES, but also with voluntary renewable energy transactions. Through the use of GIS Certificates, which are created and transferred exclusively within the NEPOOL GIS, and the annual submission of RES Reports, the PUC ensures that a NEPOOL GIS Certificate used for RES compliance has not also been used to satisfy another obligation in Rhode Island or any other jurisdiction. For example, National Grid administers voluntary renewable energy programs in both Rhode Island and Massachusetts. While voluntary markets represent only a small fraction of NEPOOL GIS Certificates, it is nonetheless important to the integrity of both programs that all certificates are tracked and settled appropriately.

<sup>57</sup> By comparison, the RES is referred to as the “mandatory” or “compliance” renewable energy market.

It is noted that National Grid only reports RECs retired by GreenUp suppliers on behalf of GreenUp customers that are Rhode Island-eligible. Most of the RECs retired by GreenUp suppliers to meet sales to GreenUp customers in Rhode Island are from facilities that do not have Rhode Island RES certification, and therefore are not eligible to be used for RES compliance.

## Appendix 5: Current RES Annual Targets

**Table A5: RES Compliance Year Targets for New and Existing Resources**

Compliance Year	Total Target percentage	Minimum percentage from New Renewable Energy Resources	Percentage from <i>either</i> Existing or New Renewable Energy Resources
2007	3.0%	1.0%	2.0%
2008	3.5%	1.5%	2.0%
2009	4.0%	2.0%	2.0%
2010	4.5%	2.5%	2.0%
2011	5.5%	3.5%	2.0%
2012	6.5%	4.5%	2.0%
2013	7.5%	5.5%	2.0%
2014	8.5%	6.5%	2.0%
2015 <sup>a</sup>	8.5%	6.5%	2.0%
2016	10.0%	8.0%	2.0%
<b>2017</b>	<b>11.5%</b>	<b>9.5%</b>	<b>2.0%</b>
2018	13.0%	11.0%	2.0%
2019	14.5%	12.5%	2.0%
2020 <sup>b</sup>	16.0%	14.0%	2.0%
2021	17.5%	15.5%	2.0%
2022	19.0%	17.0%	2.0%
2023	20.5%	18.5%	2.0%
2024	22.0%	20.0%	2.0%
2025	23.5%	21.5%	2.0%
2026	25.0%	23.0%	2.0%
2027	26.5%	24.5%	2.0%
2028	28.0%	26.0%	2.0%
2029	29.5%	27.5%	2.0%
2030	31.0%	29.0%	2.0%
2031	32.5%	30.5%	2.0%
2032	34.0%	32.0%	2.0%
2033	35.5%	33.5%	2.0%
2034	37.0%	35.0%	2.0%
2035 <sup>c</sup>	38.5%	36.5%	2.0%

<sup>a</sup> After conducting a review pursuant to R.I. Gen. Laws Sec. 39-26-6(d) (prior to the 2016 amendment), in Docket No. 4404, the PUC delayed implementation of the scheduled 1.5% increase in 2015. This resulted in a delay of all subsequent increases for a period of one year.

<sup>b</sup> R.I. Gen. Laws § 39-26-4 was amended to extend an annual 1.5% increase from 2020 through 2035.

<sup>c</sup> R.I. Gen. Laws §§ 39-26-1 to 10, as amended, does not explicitly maintain a RES proportion in 2036 and thereafter.